JPRS 75771

27 May 1980

East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2011

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CZECHOSLOVAKIA

MINISTER OUTLINES HEAVY INDUSTRY GOALS in 1980

Prague HOSPODARSKE NOVINY in Czech 11 Apr 80

[Article by Ladislav Gerle, Federal Minister of Metallurgy and Heavy Industry: "We Know What We Must Do"]

[Text] In February, we conducted a thorough analysis of performance in metallurgy and heavy engineering and of the experiences gained in meeting the conclusions of the Third Plenum of the Central Committee and other conferences aimed at fulfillment of the tasks of the Sixth Five-Year Plan. The preparation for and initial implementation of the adopted resolutions, though not yet always comprehensive, has already helped enterprises VHJs [economic production units] and the sector as a whole, to achieve relatively good results in 1977 and 1978. At the same time, however, adverse external effects during thai period forced curtailment of capital investment and imports throughout the national economy. This also made it necessary to transfer certain projects into the Seventh Five-Year Plan. The need to adapt to new conditions marks all of our activity this year.

We can consider it a success that in the course of last year, the VHJs and enterprises were able to overcome the shortfall of the early months. This is even more welcome, since the balancing of shortages did not adversely affect annual economic results in costs, profits and wages. With the participation of all VHJs, sector production not only liquidated the shortfall of 1.2 billion korunas from January 1979, but also met the production plan for goods by 100.4 percent, metallurgical works and nonferrous metal ore mines by 100.3 percent, and heavy engineering by 100.5 percent. The production growth was brought about by increased labor productivity of 75.5 percent, while the plan called for only 72.7 percent.

Quantity Cannot Substitute for Required Composition

Unfortunately, deliveries for capital investment are not effect where they are needed the most. Especially in centrally-rated capital investment construction projects, there was a shortfall of 194 million korunas. From the sector point of view, it is fortunate that these difficulties in capital investment construction are not a common occurrence. The sector capital-investment construction plan is being consistently fulfilled by VHJ VITKOVICE SKODA, TMS [Milling Machinery Works] Pardubice and the Trinec and Sverma Iron Works have been good investors. Good results were achieved in the pipefitting plant in Podbrezova, the connecting rail line in Trinec Iron Works, oil pipe in NHKG [New Klement Gottwald Metallurgical Works], expansion construction in Sigma Opava and Hodonin, TMS Pardubice, and all capital-investment construction of the No 2 blast furnace in Vitkovice. What was it that made it possible. It was good preparation, concentration of assets, outstanding political and organizational work, and understanding by suppliers. Sector enterprises must show the same understanding of the seriousness of our tasks toward other partners as well.

We consider it serious that, while metallurgical VHJs met export tasks, the heavy engineering industry showed certain shortages. The shortfall was concentrated in VHJ VITKOVICE, CKD Prague, SKODA, and Chepos. Planned construction of supplies was not fulfilled by the ZSE [High-Voltage Electrical Engineering Plants] and three other VHJs. In the labor plan, as well, we must carefully consider the problem of overtime work. While sectorwide this remained on last year's level, i.e., 6.1 percent, there was an increase in overtime labor in seven VHJs. Utilization of regular working hours decreased to 92 percent, which means the loss of 179,000 working days in the sector.

Despite overall fulfillment of spare-parts production by 101.1 percent (with a dynamic of 109 percent), the following fell short of this task: CKD Prague, 88.9 percent; RBMZ [Nonferrous Metal Ore Mines], 93.5 percent; Iron Metallurgy, 96.8 percent; and VITKOVICE, 98.2 percent. Of 15 types of assessed spare parts, the sector fell short in 10, and these are such important parts as those for machinery and fittings for coal processing, fulfilled 25.3 percent; engineering for the processing of mineral substances, fulfilled 27.1 percent; and reactors and fittings for nuclear electric work, fulfilled 28.2 percent. This had a very adverse effect on production at the beginning of this year.

Furthermore, we cannot be satisfied with plan fulfillment in basic metallurgical production which, despite overall volume fulfillment of gross production by 100, plus an increment of 1.6 percent, has not met the substantive production quotas. The sector fell short in coke production (17.2 kt), crude iron (448.8 kt), raw steel (506.6 kt), and rolled material (172.1 kt). This was due, among other factors, to lower quality and richness of coal and nonferrous ores, and a decline in technology in the NHKG coke plant, as well as in aggregates of other foundries.

Having delineated and raised the tasks for 1980, we are committed in the Sixth Five-Year Plan to reach in engineering VHJs relative savings of 833,591 tons of ferrous metals, 18,239 tons of nonferrous metals, and 2.5 million tons of measurable fuel. Judging by developments to date, there is hope that we will fulfill these tasks. Nevertheless, these facts demonstrate how vital it is to devote attention to saving materias in engineering production management, to reducing engineering capital-investment construction cost, installation of economy technology, and the collection of assorted metal waste.

In energy supply this year, we cannot expect higher ceilings in either heating or engine oils. This applies to the future as well. Therefore, it is highly important to look for replacement fuels immediately. At the same time, this year we must lower consumption of assorted coal in retail trade 5 percent below last year. The allotted figures in labor for electrical operations, on the other hand, must be fully utilized for designated production, and must avoid failure to exhaust agreed-upon purchases. The process of electrical-energy consumption in the course of a day shows that there are reserves which can be employed quickly and without further cost.

In the closing years of the Sixth Five-Year Plan, the consequences of insufficient preparation of requirements for export of investment aggregates have been clearly demonstrated. In piecemeal exports, we find a lack of flexibility and volume capacity for rapid adaptation of production programs to the demands of foreign markets. Also insufficient is the modernization process in heavy engineering for foreign markets, and there are shortcomings in negotiating this trade. For this reason, we have failed to meet to the fullest extent the basic demand of the Sixth Five-Year Plan, namely, to focus on export much of the engineering production increment, and this mainly in investment aggregates.

Quality Conditions Technological Development

Performance of past years with respect to technological development varies significantly by branches, VHJs, and its very substance. The overall value of improved production would, with all the proposed and implemented improvements, reach 1.1 percent in metallurgy and 13.3 percent in heavy engineering. A faster pace in proposed intentions than those envisaged by the Sixth Five-Year Plan, was achieved only by the Czechoslovak Railroad Car Works (27.1 percent) and CKD Prague (20 percent). The shortest period to achieve technological and economic viability is planned by Czechoslovak Air Technology, namely, 6.5 years, the longest by the RBMZ nonferrous metal ore mines, i.e., 15 years. The sector average of about 10 years is quite unacceptable, even though it is substantially affected by metallurgy.

Production in development programs, one of the foremost tasks, was fulfilled only 99.1 percent last year. Of 11 programs, our sector failed to meet the plan in 5, resulting in an overall shortfall of 267.4 million korunas. It occurred in nuclear electric plant fittings, in tool and die engineering, and in construction engineering.

The concept of the production plan for 1980 presupposes more rapid production development in development programs, i.e., 16.3 percent of the overall heavy engineering production (15.9 percent last year), as well as more rapid development in selected finishing branches (increased production by 10.5 percent). More than average growth is planned, in addition to pumps, armature, industrial transformers, air technology, and conversion elements, also in steam and gas turbines, mining engineering for deep extraction, chemical fittings, rolled material fittings, tool and die engineering, and food-processing engineering. The closest attention must be paid to engineering deliveries for coal extraction, surface and deep, and fittings for the nuclear energy industry.

It is quite obvious that many managers have failed to take a responsible approach to the role of technological development. Such tendencies are unacceptable. We cannot afford any further relative stagnation of the technological level of our production process.

In contrast to all this, there are very good results in the application of improved technology in all metallurgical VHJs and in the Vitkovice foundries. The average time period from the start of development to introduction into production is about 3 years in Vitkovice, in foundries up to 5 years, and in engineering VHJs CKD Dukla, SIGMA, Czechoslovak Railroad Car Works and Chepos, up to 6 years.

The state plan for technological improvement for 1980 contains 178 implementation projects. We expect the implementation organizations to devote enough attention to the application of the results to ensure that all implementation projects of the state and sector plans are met to the full planned extent. This, of course, requires that the responsibility for this not be limited to components of technological development only, but that, through proper meshing, all sectors participate actively.

Substantially higher demands will be placed on the licensing process. We must make sure that previously obtained licenses are quickly utilized. The plan of procurement and sale of licenses must be met as responsibly as all other parts of the national economic plan.

The cost of satisfying customer complaints shows that the quality of products is improving. Its share of sales volume has, in comparison with the previous year, decreased by half (to 0.09 percent) and foreign customer complaints by 0.06 percent. Nevertheless, we have not yet achieved a desirable turn in this situation. In order to increase the care for quality, especially by economic managers, material incentive was adjusted in a manner which make quality criteria among the decisive indicators in evaluation. Already initiated stimulation measures to penalize poor-quality production must play a key role in this process.

It appears that we do not have problems with selling our production, but rather the problem is that we fail to produce sufficient reserves. While metallurgy rescued the sector's export commitment, such action cannot be repeated. We must insist that export tasks be met, above all, by the engineering industry through better quality, better service, and suitable delivery deadlines. Only in this manner can we balance the rise in prices of raw materials, energy and food stuffs which we must purchase. We were again reminded of this by the 14th Plenum of the Central Committee.

The Most Important Tasks and Problems

Since the time we worked on the plan proposal for this year, we have been able to lower certain risks or have found ways of eliminating them altogether. These were included in the Synthesis of the FMHTS [Federal Ministry of Metallurgy and Heavy Engineering] Measures for Ensuring Key Tasks of the Plan and Budget for 1980. The UVOS [Central Committee of Sector Union] of metal and engineering workers, issued a joint statement on the development of labor and creative initiatives for 1980, which reacts to the tasks contained in the FMHTS document. Not it is necessary to translate these measures into practice.

I will comment on the characteristics of certain of our tasks.

The growth in production of goods is to be 4.6 percent, of which almost 7 percent is in heavy engineering and 3 percent in metallurgy and nonferrous metal ore mining. Compared with last year, we are to increase steel production by more than 1 million tons. Iron metallurgy is not meeting the tasks originally planned for this year. This is caused by three factors: low development of projects caused by last year's development, worsening of technological conditions and shortcomings in operations of coke batteries and blast furnaces, and insufficiency of iron ores in the required composition and quality of coke-convertible coal and coke. The shortages in the input of nonferrous metals and coal, led to a lowering of crude-iron production by 250-300 kt, along with the same shortfall in rolling materials. This drop in production is painful, and it is difficult to say which customers will suffer as a result. It have made a decision to ensure basic needs of engineering. It goes without saying that we cannot curtail value receipts from nonsocialist countries, nor can we fail to fulfill commitments to CEMA. This means that in metallurgy we must produce with optimum quality, intensify metal utilization, and speed up the stabilization process of primary metallurgical production. In addition to stabilizing their own forces, metallurgists need the help of engineering workers, especially in repairs of metallurgical aggregates. I have assigned appropriate tasks to the general directors and I will uncompromisingly demand their fulfillment.

The dynamics of engineering development in our sector of 106.5 percent, includes the metallurgical production in VHJ Vitkovice. The problems are not concentrated in the technological base but rather in the demanding pace of labor-productivity growth, and especially in meeting material and subcontracted deliveries. I emphasize that we must consistently base our work on limited entry of new assets, rather than count on the possibility of their increase.

In domestic capital investment, we must ensure delivery volume of 14.2 billion korunas. This year, 80 projects are to become operational, on top fo that, we have to complete 31 projects from 1979! These are mainly in capital-construction projects in the fuel and energy complex, including such important ones as the second bloc of the V 1 electric works, repumping electric works in Cerny Vah, electric works Melnik II, electric works V a and V 3, and deliveries for the CSA Vrsany, Maxim Gorki, Most and Merjur quarries. In the FMVS [Federal Ministry of General Engineering] it is Tatra Koprivnice, TAZ [Trnava Automobile Works], and BAZ [Bratislava Automobile Works]; in agriculture, it is grain silos and irrigation; in chemical industry, deliveries for the refinery in Zaluzi, the Matador tire-manufacturing plant and Slovnaft Bratislava.

In the area of capital construction in our sector, we must focus maximum attention on construction completion in the pipe and nuclear programs, on the development of the coke industry, and on modernization in metallurgical and engineering production. The government set the principles to be applied to new construction projects during 1980-82. Decisive for approval of new construction will be evidence of full use of available assets, not only in relation to the investor proper, but also within the framework of the branch, with a shift coefficient of 1.5, minimum labor participation in the principal shift of 90 percent, and assurance of adequate labor force and fuel for the new installation. It has happened that the bank refused to agree to finance new construction projects until such time as these conditions were met.

More Flexible Commercial Activity

One of the most important tasks is exports where the most harmful features include chronically long delivery deadlines, and failure to honor even those. This also refers to spare parts. The competition offers delivery terms as much as a year shorter! In capital investment aggregates, our work today determines how well we fulfill export requirements in the Seventh Five-Year Plan in which we are expected to double engineering exports.

On all level of management, it is necessary to ensure unconditional fulfillment of this year's tasks in accordance with the requirements of foreign trade, and devote special attention to ensuring deliveries which complete the capital investment whole, while consistently supporting the role of a single principal supplier. An important requirement in this will be cooperation and coordination between commercial and technical personnel.

Relative to the utilization of investment capital, it is particularly urgent that capital for minor investment and engineering not included in the construction-project budget, be oriented on a priority basis toward effective modernization projects which promise rapid returns. We must not forget that the key to the elimination of imports lies in our capital-investment policy.

Another important political task is to ensure deliveries for domestic trade. The task for this year is 1.9 billion korunas in retail prices. The problem lies not only in volume but also in the elimination of shortcomings in assortment, slow modernization and uneven distribution in the course of the year.

For several years now, there have been unhealthy tensions between deliveries within the sector and in relation to the other branches. On the one hard, advancing specialization allows for production growth. On the other, however, every producer is more dependent on his suppliers. Notions that our economy is a supplier's market provide fertile ground for underbidding when dealing with suppliers. There should be no more cases of an enterprise demanding the closing of an economic contract and, only after the supplier had been publicly criticized, it comes out that, while the supplier is working on the delivery, he keeps the customer in the dark, which influences negotiation of the customer's demands. How am I to understand the fact that, as of 30 September 1979, cases of conflict which were officially registered amounted to 607 million korunas within our sector alone? Almost as much is represented by such cases in general engineering. Many of the demands are exaggerated and, in most cases, this type of conflict should be ruled on with finality by middle levels of management. Once these cases reach the specialized units of the ministry, it is to the detriment of conceptual management which has been so insistently demanded.

The Synthesis of Measures

According to the labor plan, we are to ensure production tasks of the state plan with 4,111 additional workers. Their deployment in metallurgy is directed toward new projects. In engineering, the increase will cover the needs of nuclear energy, deliveries for the fuel and energy base, deliveries for transportation, air technology fittings, and finishing departments. Improving the age structure of workers in selected organizations in Prague, is also very important. Apprentice youth is the main source of specialists. Last year, the largest number ever of young people entered into apprenticeship, i.e., 13,446 (9,643 in the Czech Socialist Republic, and 3,803 in the Slovak Socialist Republic). This is more than in 1979 but less than called for in the plan. No less important is the stabilization and structure of apprentice-training subjects according to the needs of production.

The wage situation, on the whole, is good. For this year, increases in wages in both branches are set for 102.2 percent. On a priority basis, we must strengthen wages of miners working underground, in outdoor technological operations, and in certain organizations in the North Bohemian kraj.

For the gradual development of targeted programmatic approaches within the framework of the Seventh Five-Year Plan, we will use a new format of targeted stated programs. Their purpose is qualitative improvement in the course of the Seventh and Eighth Five-Year Plans. The FMHTS has statewide responsibility for the state targeted program of economizing and effective management in dealing with metals. We are now in the process of completing this plan.

We have found that not even growing demands on results in enterprise management lead, on their own, to satisfactory improvement in their operations.

There is still incompleteness in planning processes, insufficient application of khozraschet, inadequate reserves in production and sales, shortcomings in quality and application of technological and economic norms in introducing new products, in material and moral incentive of the workers, etc.

Evaluation of the experiment in management efficiency and quality in VHJs Sigma and Metallurgy-Related Industries, confirmed the beneficial effect of the synthesis of set indicators. In January 1980, the Federal Government approved the Program of Development and Implementation of the Synthesis of Measures To Improve the System of Closely Targeted Management in the National Economy after 1980. By midyear, the synthesis will be applied to our sector and appropriate methods will be selected to acquaint management on all levels with its principles.

A very important factor in meeting our economic tasks is the development of labor and creative initiative, as well as the application of the most effective forms of socialist competition. Experience of past years in fulfillment of tasks has confirmed that workers initiative had the decisive share in our achievements. We must, however, not waste this initiative, nor must we rely on it to resolve that which was neglected through carelessness of those who are supposed to be managers. The document of the Central Committee of the Metallurgists Union on the development of socialist competition in honor of the 35th anniversary of the liberation by the Soviet Army, was sent to all general managers. It focuses attention on the salient portions of the plan and on tested forms of developing workers initiative. This document must not be ignored.

Our sector's management, as well as the union, agree that, while the planned tasks for 1980 are very demanding, they are also realistic and can be met. Above all, we must devote more attention to the development of initiative in the whole area of preproduction stages with the aim of raising the creative contribution of the research, development, and design base, as well as that of all engineers and technicians in the preproduction sphere.

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GERMAN DEMOCRATIC REPUBLIC

STATISTICS PROVIDED ON SHIP CONSTRUCTION, DELIVERIES FOR 1979

East Berlin SEEWIRTSCHAFT in German Vol 12 No 2, Feb 80 pp 62-69

[Article by D. Strobel: "GDR Shipbuilding Balance 1979"]

[Text] The jubilee year of the GDR was also a successful year for its shipbuilding industry. The plan was fulfilled and surpassed as intended. For the first time, the annual industry production exceeded the M 4 billion level. The total number of export countries increased to more than 30. The shipyards of the VEB shipbuilding combine delivered 59 newly-built sea-going vessels with a total of 394,745 gross registered tons and a total carrying capacity of 445,270 tons to customers from 7 countries (including the GDR). The comparative figures for 1978 were 58 newly constructed ships totaling 405,988 gross registered tons and 450,538 dw tons. For the main customer, the USSR, 37 ships were built; of these, 6 were all-container and special-type freighters for Morflot (see-going navy), 24 were fishing vessels for Rybflot (fishing fleet), and 10 were ships for Rechflot (inland fleet). In addition, customers from the Socialist Republic of Romania and from Greece, India, Norway, and from other countries received GDR ships. The Rostock VEB Deutfracht/Seereederei shipping line received the nine newly-built ships listed below in the sequence of their having been put into service, and thus was thereby able to rejuvenate its fleet. They were the following:

	Type
MS "Muggelsee"	Poseidon
MS "Fliegerkosmonaut der GDR Sigmund Jahn" [Aviator-Cosmonaut of the GDR Sigmund Jahn]	Neptun-421
MS "Werbellinsee"	Poseidon
MS "Cottbus"	Meridian
MS "Inselsee"	Poseidon
MS "Pasewalk"	Neptun-421
MS "Frankfurt/Oder"	Meridian
MS "Schwielowsee"	Poseidon
MS "Krimmitschau"	Neptun-431

In the course of the year, 350 ships were repaired in the shipyards of the shipbuilding industry within the time periods scheduled for their repair.

Through increases in the volume of repair work it was possible still further to reduce the time periods necessary for keeping the ships in the shipyards for repairs than in the preceding year. In this connection, special results were achieved by the collectives of the state-owned Neptun Shipyard in Roctock, which reconstructed the multipurpose freighter MS "Hettstedt" 18 days ahead of schedule and in so doing increased its container capacity from 215 to 302. The biggest repair job is the passenger ship "Voelkerfreundschaft ["Friendship Among Peoples"], which has since December 1979 been the object of a basic bottom overhaul and of general repair work for purposes of restoring its ship's rating.

Special achievements were accomplished with respect to the development and safeguarding of quality and dependability. These accomplishments find expression in the following areas:

--An increase in the output of test-subjected products with the "Q" quality indicator to the 387 percent level compared to 1978;

--the 18 January 1979 presentation for the first time of the quality indicator "Q" to a freighter of the special bulk cargo freighter Type UL-ESC series (shipbuilding yard: the VEB Warnow Shipyard at Warnemuende);

--the presentation for the first time of this award to the fishing and processing ship of the "Atlantic-Supertrawler" type, a primary product, on 5 October 1979 (Shipbuilding yard: VEB Shipyard at Stralsund);

--the presentation of this award for the first time in October 1979 to the 60-ton fishmeal installation of the VF/MO4 type (Manufacturer: VEB Ship Installation Construction Works, Barth);

--in the presentation of this award for the first time to the 80kN and 150kN automatic counterrecoil windlasses and for the entire 2 AVW 5 assortment--windlasses with anchor components or anchor equipment (manufactuer: VEB Klement-Gottwald Works, Schwerin);

--the title "Excellent-Quality Work Enterprise," which the VEG Warnow Shipyard in Warnemuende, Klement-Gottwald Works in Schwerin, Diesel Motor Works in Rostock, and Automated Refrigerator Plant in Berlin are holding or have defended successfully, and for which additional enterprises are competing.

The technological results of the past year include particularly the following:

--Intensified use of automated and mechanized welding techniques;

--optimum development of auxiliary and secondary processes (especially in the sphere of hull construction);

--phased introduction of conservation measures in the shipbuilding-connected assembly process;

--effective use of transport equipment in connection with implementation of advantageous transport technologies;

--expansion and improvement of the volume development section, with due attention given to the mounting of the primary engine; and

--transition to computer-based technologies.

In a manner setting an example typical of the VEG Shipbuilding Combine, the trustees of the Warnemuende VEB Warnow Shipyard on 17 December decided on their competitive program for 1980. With a high performance increase and with new initiatives they propose systematically to overfulfill their ambitious plan and to make worthy preparations for the 10th SED Congress. A favorable basis for this was created by the all-round fulfillment of the plan for 1979, and this was true not only with respect to the Warnow Shipyard.

VEB Warnow Shipyard, Warnemuende

The shipbuilders of the Warnow shipyard delivered to customers from 4 countries and from the GDR 11 sea-going freighters, including the last 3 all-container ships of the "10" series of the "Mercur" type. With six ships, the USSR is again the main customer. Its orders, which may be considered large also if measured by international standards, constitute a substantial effect of the socialist economic integration, and they find expression in many production jubilees. An expression of this is also the launching of the 250th sea-going freighter on 22 November of last year. The jubilee ship MS "Stepan Razin" belongs to the arctic freighter series UL-ESC, has a carrying capacity of 19,885 tons and, like its 8 forerunners, is designed especially for the northern sea-route for transporting iron-ore concentrates from Dudinka to Murmansk, and for transporting piece goods, industrial equipment, and a maximum of 441 containers in the opposite direction.

Between 23 June 1957, when the "Frieden" was the first 10,000-ton freighter of the GDR to leave the shipyard and March 1980, 250 freighters for customers in 12 countries will have left the Warnow shipyard, which specializes in the building of freighters. In a period of 23 years, the Warnow shipyard produced, as of 31 December 1979, the following 16 freighter types:

199 piece-goods carrying ships	in 11 series
41 bulk-goods and specialized bulk-goods carrying ships	in 4 series
10 all-container ships	1 series

The main customer is the USSR, which took delivery of 104 newly-built ships, followed by the GDR (59), France (19), India (19), and 8 additional countries.

On 14 November 1979, the prototype of the newly developed "Monsun" series, the MS "Faneos," was delivered to a Liberian shipowner. This type of ship is distinguished by its high transport capacity of 604 containers, which is noteworthy for freighters of this size, and by its efficient swing-beams and loading apparatus (4 times 35 tons).

On 20 September 1979, the shipbuilders launched the 20th semicontainer freighter of the "Meridian" series. The name of this ship is "Schwerin" and on 15 January 1980 it was handed over for delivery to the VEB Rostock Deutfracht/Seereederei shipping line as the 60th newly-built ship.

VEB Mathias-Thesen Shipyard, Wismar

The new-ship building performance of this enterprise in 1979 comprised the construction of seven new ships for four customers. The increased performance capability of the shipyard collective has found expression in the completion of four well-equipped deep-freeze ships of the "Kristall" type within 1 year. With the "Khrustalnyy Bereg," the shipyard on 28 December delivered the 25th ship of the "Polar/Kristall" series, which has been in production and has been systematically improved since 1970. The home port of the jubilee ship is Vladivostok, and it has been assigned to the Far Eastern fishing fleet. The improved usability of the "Polar/Kristall" series is made particularly noticeable by its following features:

--An increase in the carrying capacity from 7,936 tons to 9,606 tons;

--a lowering of the measured tonnage from 12,237 tons to 7,856 gross registered tons;

--automation level A-2 as of 1978; and

--a crew reduction from 100 to 75 persons.

Through technological and managerial-organizational measures, it was possible to reduce the time spent by this type of ship in the shipyard from 101 days in 1978 to 77 days, i.e. by 24 percent.

For a Panamanian shipowner, the 17th ship of the universal-freighter series OBC was launched on 29 November 1979. The 24,000 ton freighter, which was christened "Maya," will be delivered in the spring of 1980. The advantages of this ship model, which has been in production for 7 years, result from its ideal adaptability to changing load volumes, its usability in all oceans including passage through the Suez and Panama canals and through the St Lawrence Seaway, and the sought-after size of its loading space. A deck aperture of more than 75 degrees and smooth-walled loading compartments guarantee easy transloading of loose goods, ore, grain, wood, piece goods, industrial equipment, long cargo items, and containers. This ship type has thus far been exported to Norway, Sweden, Finland, France, Hong Kong and Greece, and it has also been delivered to our merchant fleet. It has been possible to reduce time in the shipyard to 80 days, or 16 percent, as compared to 1978.

VEB Neptun Shipyard, Rostock

Of the 10 ships newly built in 1979, the VEB Rostock Deutfracht/Seereederei shipping line alone took delivery of 7. The Neptun shipyard thereby contributed the major share of the modernization of the GDR merchant marine.

The ship types of the Neptun and Poseidon series, which have proved their worth for years, are successfully meeting the demands of the world market and are well suited for container transport and for changing load volumes. The newly-built ships distinguish themselves through extensive automation of their machinery and a high deck aperture angle as well as by the high standards maintained for their living, working, and recreation quarters. Their functional construction has caused shipowners from nine countries to buy them. Without having to give up the type-related specific basic concept of the Neptun model (carrying capacity about 12,500 tons), it has been possible since 1970 to complete construction of 31 new ships and to adapt them to the varying specifications and shipowner instructions. In this time period, the container capacity was raised from 308 to 445. The MS "Schwielowsee" was the 17th ship of the Poseidon series to be handed over to the state-owned Deutfracht Seereederei shipping line at Rostock and was put into service in the Mediterranean/African sea-traffic area.

The ship repair collectives attained outstanding achievements with their conversion ahead of schedule of the "Hellstedt," the general overhaul of the fishery research ship "Ernst Haeckel," the modernization of the fishing and processing ship "Rudolf Leonhardt," and of other ships.

VEB Shipyard Stralsund

With 21 fishing and processing ships of the "Atlantik-Supertrawler" type, the shipyard collective achieved also in 1979 the highest new ship construction performance of all shipyards. On the basis of intensive plant and product examination by the Office for Standardization, Measurements, and Product Control, as well as by specialists of the Shipbuilding Combine, the fishing vessel "Atlantik-Supertrawler" on 5 October of last year was awarded the GDR emblem of Highest Quality. The reliable work carried out for many years by the Volkswerft [People's Shipyard] collectives was thereby given recognition and, at the same time, documentation was provided of the fact that the products of VEB Volkswerk Stralsund continue to be a codeterminant of pertinent world standards. With this award, which was bestowed on the eve of the 30th anniversary of the GDR, the shipyard collective carried out its commitment to hand over to its customer (Nachodka fishery base) 11 days ahead of schedule the first ship to be issued the quality classification "Q," the Atlantik-Supertrawler "Novokazalinsk," intended for delivery to the Soviet Union. In the future, the vessels of the "Atlantik-Supertrawler" class will display the quality emblem "Q" on the forward bridge bulkhead above the shipyard's nameplate.

On the occasion of this first-time classification, a multilingual table of honor was mounted on the bridge which calls attention to this event and its significance for GDR shipbuilding. Along with obtaining the quality emblem "Q," the Volkswerk at the same time assumed a high degree of responsibility in the sphere of our national economy, since its share in control-subjected production of the entire shipbuilding industry sphere is the biggest. On 18 December, the flag exchange was carried out on the "Novoukrainka," the 125th ship of the Supertrawler series. The home port of the newly-built ship will be Kerch. At the beginning of the year, there came into being within this series 6 fishery-training ships with instruction and living quarters for 80 instructors and course participants for the fishery bases in Riga, Murmansk, Sevastopol, and Vladivostok.

Jointly with the Soviet customer, a research-ship series was developed by way of a further modification, and the "Novoulyanovsk," which was delivered on 19 November 1979, was the first such vessel. It offers special possibilities for carrying out marine-biological research, for examining new fish catching and processing methods, and for exploring new operational possibilities. Six laboratories are available for such research work, including a hydroacoustical laboratory, a technological laboratory, a hydrobiological laboratory, and a photography laboratory, as well as two winches and a slaughtering room.

VEB Elbe Shipyards, Boizenburg/Rosslau

The twin-model program of ships produced exclusively for the USSR was continued successfully with delivery of 10 ships. Three additional inland passenger ships were placed at the disposal of the vacation and tourist traffic. They are the following:

--The "V.I. Lenin," for the Ukrainian Inland Shipping Line, Kiev;
--the "Aleksandr Ulyanov," for the Northwest Shipping Line, Leningrad;
--the "Mikhail Lomonosov," for the Belomar-Onega Shipping Line, Petrozavodsk."

Thus there are currently in service 13 of these popular hotel ships of the Vladimir-Ilich series.

A climactic point in the competitive campaign on the occasion of the 30th anniversary was the launching of the 15th ship of this series which, on 7 September, was given the name "30 Let GDR" [30 Years of GDR]. On 20 December, the inland-coastal container ship MS "Sosjva" was the 14th ship of the series to be delivered to the inland fleet of the USSR (home port: Omsk). By way of further development of this ship model, a refrigerated container inland ship is in its preparatory stage (its construction will begin in April 1980).

VEB Yachtwerft [Small-boat Building-Yard], Berlin

On 23 November 1979, the first vessel of the tugboat series 103 kW (140 PS) was delivered to its customer at the VEB Yachtwerft, Berlin. A total number of 22 of the serial vessel intended for the main customer, the Waterways Main Administration of the Ministry for Transport, and the VEB inland shipping line will be built in 4 variations in the period from 1979 to 1981. They will serve as propulsion vessels for standard barges in regular water traffic and towing service on rivers, canals, and in inland ports.

The hook-up capacity is fixed at one 170-ton barge in moving water and at two 120-ton barges in static water. The lowerable control booth guarantees a fixed-point height of 3.50 meters and, with this bridge-passage height, it makes possible the use of this propulsion vessel on all waterways of the GDR.

According to its DSRK classification, its service area is Traffic Area V. The fuel supplies provide for a service period of 160 hours in summer and 150 hours in winter service.

For towing standard transport barges, the first variant is equipped with a spring-lock coupling device for barges with a coupling rail, with rope coupling and tension-regulating apparatus for barges without any coupling rail, and with tow hooks for towing propulsionless vessels.

The second variant is equipped only with rope coupling and tension-regulating devices for transport activities of the technical fleet of the inland navigation services and is additionally equipped with recovery equipment with a conveying capacity of 160 m^3/h at 200 kPa.

Technical Data

Overall length	10.90 m
Frame width	5.06 m
Overall width	5.10 m
Height of sides	1.50 m
Structural draft	1.00 m
Draft with 100 percent supplies	1.15 m
Fixed-point height (draft - 1.00 m)	3.50 m
Displacement (KWL)	32.00 m^3
Engine output at 2,000 revolutions per minute	103 KW (= 140 PS)
Speed--connected to two 170-ton barges (proceeding in canal)	7.1 km/h
connected to one 170-ton barge (speed of current: 5 km/h)	4.2 km/h

Table 1. New Ship Construction in 1979, Shown According to Shipyards

Shipyard	Number	Measurements in GRT	Load Capacity in tons
VEB Warnowwerft Warnemuende	11	146,011	176,075
VEB Mathias-Thesen Werft Wismar	7	84,106	111,027
VEB Schiffswerft Neptun Rostock	10	75,282	100,686
VEB Volkswerft Stralsund	21	67,275	44,355
VEB Elbewerften Boizenburg/Rosslau	10	22,071	13,127
Totals	59	394,745	445,270

Table 2. New Ship Construction in 1979, According to Ship Types

Ship Type	Number	Measurements in GRT	Load Capacity in tons
Dry Freight Ships	31	277,445	360,911
--All-container ships	3	53,502	44,160
--piece-goods ships	15	127,078	172,946
--bulk-goods ships	6	89,515	132,325
--inland container ships	7	7,350	11,480
Fishing Vessels	25	102,579	82,712
--fish-catching and processing ships	21	67,275	44,355
--refrigerator ships	4	35,304	38,357
Other Ships	3	14,721	1,647
--inland passenger ships	3	14,721	1,647
Totals	59	394,745	445,270

Table 3. Share Percentage of Primary Product Categories in Overall New Ship Construction, based on GRT

Primary Product Category	Number	Share Percentage, based on GRT
Dry-load freighters	31	70
Fishery vessels	25	26
Others	3	4
Totals	59	100

Table 4. Export Share in New Ship Building Achievements, on GRT basis

	Number	GRT Measurements
Overall export figures	50	323,998
--USSR	37	197,640
--other countries	13	126,358
New ships built for national shipping lines	9	70,747
Totals	59	394,745

Ship Deliveries by GDR Shipbuilding Industry in 1979

Delivery Date	Job No	Ship's Name	Customer	Ship Type	Measurements in GRT (load capacity in t)	Length (in m)	Width (in m)	Height (in m)	Depth (in m)	Power Plant	Power Output (in kW)	Speed in km	Description in SEEWIRTSCHAFT Issue No
VEB Warnow Shipyard, Warnemuende													
18 Jan 79	105	Aleksandr Suvorov	Foreign	UL-ESC	13,571 (19,885)	154.88	22.86	13.50	9.88	K 8Z 70/ 120 E	8,240	15.2	11/1978
26 Feb 79	458	Nadezhda Obukhova	Foreign	Mercur	17,834 (14,720)	157.24	25.40	17.45	9.20	HPC 6 RND 90	12,800	20.0	3/1977
31 Mar 79	399	Cotnari	Foreign	Ozean	9,524 (13,905)	140.73	20.30	11.90	9.31	K 8Z 70/ 120 E	8,240	18.4	12/1970
24 Apr 79	106	Mikhail Kutuzov	Foreign	UL-ESC	see "Aleksandr Suvorov"								
18 May 79	442	Cottbus	GDR	Meridian	10,225 (13,665	146.76	21.80	11.90	9.02	K 8Z 70/ 120 E	8,240	18.4	8/1973
14 Jun 79	418	Jalamurugan	Foreign	Meridian	10,092 (13,715)	see "Cottbus"						17.7	
20 Jul 79	107	Admiral Ushakov	Foreign	UL-ESC	see "Aleksandr Suvorov"								
24 Aug 79	459	Maksim Mikhaylov	Foreign	Mercur	see "Nadezhda Obukhova"								
21 Sep 79	443	Frankfurt/Oder	GDR	Meridian	see "Cottbus"								
14 Nov 79	241	Fanoos	Foreign	Monsun	11,730 (17,310)	146.00	23.05	13.40	10.18	K 8Z 70/ 120 E	8,240	17.0	9/1978
30 Nov 79	460	Nikolay Golovanov	Foreign	Mercur	see "Nadezhda Obukhova"								
A total of 11 newly-built ships totaling 146,011 GRT													
VEB Mathias-Thesen-Shipyard, Wismar													
31 Mar 79	262	Polar VI	Foreign	Kristall	11,736 (9,539)	142.00	22.20	13.60	8.00	K 9Z 60/ 105 E	6,620	17.2	10/1979
7 Jun 79	115	Fengtien	Foreign	OBC	16,430 (24,274)	176.60	22.86	14.0	10.40	K 8Z 70/ 120 E	8,240	15.4	1/1976
30 Jun 79	210	Baltiskiy Bereg II	Foreign	Kristall	7,856 (9,608)	see "Polar VI"							
21 Sep 79	118	Wismar	Foreign	OBC	16,186 (24,198)	see "Fengtien"							
26 Oct 79	211	Primorskiy Bereg	Foreign	Kristall	see "Polar VI"								
17 Dec 79	119	Ariadne	Foreign	OBC	16,186 (24,198)	see "Fengtien"							
28 Dec 79	212	Chrustalnyy Bereg	Foreign	Kristall	see "Polar VI"								
A total of 7 newly-built ships, totaling 84,106 GRT													

Delivery Date	Job No	Ship's Name	Customer	Ship Type	Measurements in GRT (load capacity in t)	Length (in m)	Width (in m)	Height (in m)	Depth (in m)	Power Plant	Power Output (in kW)	Speed in kn	Description in SEEWIRTSCHAFT Issue No
VEB Shipyard Neptun, Rostock													
28 Feb 79	284	Muggelsee	GDR	Poseidon	5,651 (7,309)	120.60	17.60	9.90	7.83	MB 12VD 48/42 AL-2	5,300	16.9	8/197[illegible]
30 Mar 79	427	Fliegerkosmonaut der GDR Siegmund Jahn	GDR	Neptun-421	9,23[illegible] (12,685)	150.17	21.00	11.30	9.05	MB K 9Z 60/ 105E	6,620	16.6	2/1980
15 May 79	285	Werbellinsee	GDR	Poseidon	see "Muggelsee"								
23 Jun 79	428	Soldrott	Foreign	Neptun-421	9,700 (12,850)	see "Fliegerkosmonaut der GDR..."							
30 Jul 79	286	Inselsee	GDR	Poseidon	see "Muggelsee"								
31 Aug 79	429	Pasewalk	GDR	Neptun-421	see "Fliegerkosmonaut der GDR..."								
30 Oct 79	287	Schwielowsee	GDR	Poseidon	see "Muggelsee"								
28 Nov 79	430	Pacific Dragon	Foreign	Neptun-421	9,292 (12,665)	see "Fliegerkosmonaut der GDR..."							
15 Dec 79	377	Gaviota	Foreign	Typ 471	5,993 (7,880)	121.80	17.60	9.90	7.71	MB K 6Z 57/ 80F	4,000	15.1	11/1974
29 Dec 79	431	Crimmitschau	GDR	Neptun-421	see "Fliegerkosmonaut der GDR..."								
Total of 10 newly-built ships, totaling 75,282 GRT													
VEB Elbe Shipyards, Boizenburg/Rosslau													
30 Mar 79	347	Konda	Foreign	CBK	1,050 (1,640)	78.10	11.60	4.00	2.50	2x8 VD 36/24 A-1	882	20.7 km/h	2/1979
30 Mar 79	348	Nadym	Foreign	CBK	see "Konda"								
20 Apr 79	336	V. I. Lenin	Foreign	Inland passenger ship	4,007 (549)	118.00	16.44	4.50	2.76	3xC 70-5	2,200	26 km/h	2/1976
30 May 79	349	Loewa	Foreign	CBK	see "Konda"								
25 Jul 79	350	Kurtsnovka	Foreign	CBK									
19 Sep 79	351	Staroveljak	Foreign	CBK									
28 Aug 79	337	Aleksandr Uljanov	Foreign	Inland passenger ship	see "V. I. Lenin"								
30 Oct 79	352	Biriuchki	Foreign	CBK	see "Konda"								
2 Nov 79	338	Mikhail Lomonossov	Foreign	Inland passenger ship	see "V. I. Lenin"								
20 Dec 79	353	Soajva	Foreign	CBK	see "Konda"								

A total of 10 newly-built ships, totaling 22,071 GRT

Delivery Date	Job No	Ship's Name	Customer	Ship Type	Measurements in GRT (load capacity in t)	Length (in m)	Width (in m)	Height (in m)	Depth (in m)	Power Plant	Power Output (in kW)	Speed in kn	Description in SEEWIRTSCHAFT Issue No
VEB People's Shipyard, Stralsund													
29 Jan 79	401	Prizvanie	Foreign	Fishery-training ship[1]	3,337 (2,110)	91.80	15.22	9.70	5.34	8ZD 72/48 AL-1	2,855	14.7	6/1978
22 Feb 79	402	Professor Klenova	Foreign	" "									
12 Mar 79	403	Professor Voevodin	Foreign	" "									
31 Mar 79	404	Globus	Foreign	" "									
20 Apr 79	405	Professor Kozhin	Foreign	" "									
30 Apr 79	406	Professor Nikolskiy	Foreign	" "									
17 May 79	233	Dimbovita	Foreign	Atlantic-Supertrawler	3,163 (2,117)	91.80	15.22	9.70	5.70	8ZD 72/48 AL-1	2,855	14.6	6/1978
30 May 79	488	Novoelnya	Foreign	" "	3,147 (2,117)								
20 Jun 79	489	Ivan Korzunov	Foreign	" "									
30 Jun 79	490	Novoarkhangelsk	Foreign	" "									
17 Jul 79	491	Ilya Ilyin	Foreign	" "									
30 Jul 79	234	Oltet	Foreign	" "	3,163 (2,117)								
21 Aug 79	492	Novokievka	Foreign	" "									
31 Aug 79	493	Konstaintin Alekseev	Foreign	" "									
17 Sep 79	494	Novoladozhskiy	Foreign	" "									
26 Sep 79	495	Novopskov	Foreign	" "									
4 Oct 79	496	Novokazalinsk	Foreign	" "									
25 Oct 79	235	Crisul Alb	Foreign	" "	3,163 (2,117)								
19 Nov 79	497	Novoulyanovsk	Foreign	" " (Searchship)									
30 Nov 79	498	Novocheboksarsk	Foreign	" " " "									
18 Dec 79	499	Novoukrainka	Foreign	" " " "									

A total of 21 newly-built ships, totaling 67,275 GRT

1)On the basis of Atlantic-Supertrawler

8272
CSO: 2300

INTEGRATION OF CEMA TRANSPORT FACILITIES NOTED

Budapest KOZLEKEDESI KOZLONY in Hungarian No 11, 16 Mar 80 pp 194-197

[Article by Dr Jozsef Fekete and Nikolai Mikhailovitch Vassiliev: "Socialist Economic Integration and Transportation"]

[Text] Under the leadership of their parties, the member states of socialist integration are putting into effect a strategy of socioeconomic development which calls for the increase of the workers' material and cultural well-being on the basis of the dynamic and even development of social production and the constant raising of its effectiveness. This strategy is closely connected with widening and improving the multifaceted mutual cooperation of the friendly countries and the utilization of the advantages of socialist economic integration.

The historical lessons of the cooperation of our countries convincingly proves that multifaceted economic relations and socialist division of labor represent a tremendous opportunity for the growth and modernization of the national economies.

In the past 30 years (that is, in 1978 compared to 1948), the aggregate national income in the CEMA countries increased tenfold, and industrial production, seventeenfold. Today, our countries provide approximately one-third of the world's industrial production, and our total national income accounts for one-fourth of the world's national income.

Our industrial potential is greater than that of the West European states together. Of fundamental importance is the fact that as far as the pace of economic development is concenred, the CEMA countries have surpassed the capitalist countries. Thus in the past three decades, the rate of growth of our national income was nearly three times as high, and that of industrial production, four times as high as in the capitalist countries.

In 1978, trade between CEMA countries exceeded 100 billion rubles, a more than twentyfold increase compared to 1948.

In the framework of the trade among one another, our countries cover 66 percent of their import needs, 71 percent of their domestic (internal) consumption, 80 percent of their oil, 71 percent of their iron ore, 97 percent of their lumber goods, and almost all of their natural gas needs.

A vitally important condition for the normal functioning of modern society is advanced transportation. Transportation plays a particularly significant role in the development of international relations. Lenin called transportation "the material instrument of relations with abroad." (Complete Works of Lenin, Volume 44).

Transportation is a decisive factor in the rapid growth of our mutual grade and the further deepening of our mutual cooperation and specialization; this is what ensures the reliable foundation of multifaceted social and economic cooperation between our countries.

Today, socialist integration already disposes of a vast transportation system which includes all modern means of transport. The means of transport of the CEMA countries carry annually more than 145 billion tons of goods and approximately 605 million passengers.

In the past 30 years, freight transport rose more than fifteenfold and passenger transport, twentyfold.

This rapid development is connected mainly with the technical renewal which took place in transportation under the effect of the scientific-technical revolution. At the same time, the development of transportation also had repercussions upon society, promoting the growth of both material production and nonproductive activities, and also making a valuable contribution to the advancement of intellectual life.

The development of the forces of production and the resulting broadening and deepening of social division of labor renders even more intricate on a national and international scale the relations in space and time of those participating in it. These socioeconomic changes require the formation and development of an adequate communication system in the interest of satisfying the growing needs.

Under the incentive of rapid economic development, important changes also took place in the sphere of human relations. The expansion of the size and range of scientific-technical and professional information, the development of tourism, sports, cultural and other relations represent a growing need for all kinds of communications.

Through all of this, under the effect of the scientific-technical revolution and social progress, fundamental changes also took place in transportation.

The most important among these are:

a) the significant increase of the speed of travel and the capacity to absorb passengers for all means of transportation;

b) the transformation of the structure of transportation, which is related to the unsurpassed development of pipeline, highway and air transport;

c) the mass spreading of the automobile;

d) the improvement of technological processes, the use of containers in transportation, the introduction of automation and telemechanics in directing transportation;

e) the increase of travel comfort, the establishment of means of transportation for individual and social use, and so on.

As a result of these changes, the unified transportation system of the countries of socialist integration is characterized today by the following:

Rail Transport

This is the basic branch of transportation. In 1976, the network had an extent of 223,100 kilometers, more than 62 percent of it in the Soviet Union. In practice, the railroad network is fairly dense in every European CEMA country: 132 kilometers per 1,000 square kilometers in the GDR, 103 in Czechoslovakia, 90 in Hungary, and 85 in Poland. Because of the huge area, the density of rail lines in the Soviet Union is only 6.2 kilometers. The railroad network's density index projected per 10,000 inhabitants already shows a more balanced picture and fluctuates between 5 and 10 kilometers. From the viewpoint of railroad-network density, several CEMA countries are ahead of the most developed capitalist states.

It is in the Soviet Union that railroad lines have grown to the greatest extent. Of the total 25,300-kilometer increase which was built in the CEMA countries between 1950 and 1976, more than 21,500 kilometers are in the Soviet Union. At the same time, in countries with the densest rail networks, for example, Hungary, the GDR and Poland, besides the construction of new main lines, the length of rail lines decreased because the little-used line sections and those carrying the least tonnage and, most of all, the narrow gage lines have been eliminated.

At the present time, the development of rail transport is ensured to a significant extent by the construction of a second track alongside existing lines, which makes it possible to increase the transportation and passage capacity of the main lines. In the Soviet Union, second tracks of a length of more than 5,000 kilometers were laid down on the most heavily used lines between 1971 and 1975.

The CEMA member states attach primary importance to the increase of the passenger and freight capacity of railroad transport so that they may be able to ensure the increasingly rapidly growing transport, primarily international transport.

In rail transport, the acceleration of scientific-technical progress is represented primarily by the electrification of railroad lines and the introduction of Diesel traction.

In 1976, the length of joint electrified railroad lines was 54,200 kilometers, which is more than 24 percent of the rail lines' total length and represents a nearly fourteenfold increase compared to 1950. The most modern forms of traction are in the Soviet Union, which stands first in the world from the viewpoint of the length of electrified railroad lines (39,700 kilometers in 1976).

The percentage ratio of electrified rail lines in the CEMA countries in 1976 was as follows: Bulgaria, 33.1 percent; Hungary, 15.6; GDR, 10.4; Cuba, 2.9; Poland, 25.1; Romania (in 1974), 10.3; Soviet Union, 28.7; and Czechoslovakia, 20.6.

The electrification and dieselization of rail transport have also changed the qualitative characteristics of rolling stock: the weight of trains and cars has considerably increased, the capacity and moving speed of engines have grown, and the rolling stock has been supplemented with cars of a new type of construction.

In the increase of the effectiveness of rail transport and the improvement of the utilization of rolling stock in the CEMA member states, an important role is played by the common freight car stock (OPW) set up and jointly operated by the states, which has been functioning since 1964.

From the time of its creation until the end of 1977, the number of cars tripled and reached nearly 290,000. The operation of OPW ensured significantly improved utilization of rolling stock, car turnover time was reduced 1.5 times, and empty runs were cut in half.

From the viewpoint of the effective development of rail transport, the measures affecting the reconstruction of international railroad junctions and stations are important. For this reason, the socialist countries are intensively developing their border transloading stations in the vicinity of railroad junctions with differing gages.

The development program for the transportation relations of the CEMA countries for the period 1976-1990 prescribes the technical reconstruction and modernization of the international railroad network in the interest of the development primarily of the basic lines, mainly those running east-west and north-south.

The long-range target program also calls for the construction of four new joint border stations between the Soviet Union and Czechoslovakia, the Soviet Union and Hungary, and the Soviet Union and Mongolia, which will make it possible to further increase work efficiency in rail transport.

Transport Via Pipelines

The role of transport via pipeline is continuously growing in the transportation system. This scientific-technical advance is one of the very promising trends in the field of transportation. Today, it already has considerable impact on the integrated processes of fuel-energy and raw-material transport. The length of pipelines in the CEMA countries is increasing at a rapid pace. Between 1950 and 1976, the length of oil pipelines, for example, increased nearly seven to ninefold and stood at 66,000 kilometers by the end of 1976 (with 58,600 kilometers in the Soviet Union).

The Friendship oil pipeline (with a length of 5,502 kilometers), built through joint efforts, played a decisive role in the development of pipeline transport. Its route extends from Almetyvsk (Central Volga region) to Mozir (Byelorussian SSR) and has a northern branch which leads further into Poland and the GDR, and a southern branch to Czechoslovakia and Hungary. The length of the Soviet section is 3,688 kilometers, that of the Czechoslovak section, 1,001 kilometers, that of the Polish section, 656 kilometers, that of the Hungarian section, 130 kilometers, and that of the GDR section, 27 kilometers. During the entire period that the Friendship oil pipeline has been in operation, 340 million tons of oil have reached the socialist countries from the Soviet Union. This has represented approximately 250 to 300 million rubles in transportation savings.

The international system of gas pipelines has also considerably developed. The Brotherhood gas pipeline, built by the Soviet Union and Czechoslovakia, has been in operation since 1967. Construction of a pipeline between the Soviet Union, Czechoslovakia and the GDR, through which Soviet gas, in addition to these countries, also reaches Austria, the FRG and Italy has been completed. Construction of a gas pipeline between the Soviet Union and Hungary (130 kilometers in length), running from Uzhgorod to Leninvaros, was completed in 1975.

In conformity with the agreement signed at the 38th session of CEMA, the countries of socialist integration are jointly building the main gas pipeline between Orenburg and the western border of the Soviet Union, which will carry 15.5 billion cubic meters of gas annually. From the viewpoint of its technical parameters, the gas pipeline under construction will be a unique transport system in the world.

Construction of gas pipelines is taking place in five areas, in Bulgaria, Hungary, the GDR, Poland and Czechoslovakia, on the basis of equal capital investments. More than 50 percent of the costs are borne by the Soviet Union.

Automobile Transport

The development of the material-technical base of automobile transport is a primary task from the viewpoint of the optimization and improvement of the transportation infrastructure of CEMA member states. The realization of the relevant objectives of the complex program in the member states' 4-year plans between 1971 and 1975 greatly contributed to the development of automobile transport, both from a domestic and an international viewpoint.

The joint length of highways in the countries of socialist integration was more than 1,959,000 kilometers in 1976. An unsurpassed increase has taken place regarding the construction of hard-surface roads, whose length reached 1,087,000 kilometers, that is 55.7 percent of the joint network. In Hungary, the GDR and Czechoslovakia, every highway has a hard surface.

The greatest highway network density (per 1,000 square kilometers) is in Poland, 831 kilometers; Czechoslovakia, 831, and the GDR, 440. In the Soviet Union, the development of the hard-surface highway network is going on at a rapid pace. Between 1971 and 1975 alone, 89,000 kilometers of such roads were completed.

The increase of the volume of international transport requires further development and modernization of the internationally important highway network and raising the technical standard of the most busily traveled main routes. To these belong the Moscow-Warsaw-Berlin, Moscow-Kishinev-Bucharest-Sofia, Rostock-Berlin, and Prague-Budapest-Bucharest highways.

The modernization of truck freight shipping also requires the improvement of the vehicle fleet, and primarily the increase of the ratio of heavy-load trucks and special motor vehicles.

In recent years, the proportion of heavy-load trucks has constantly increased. During the Tenth Five-Year Plan, more than 306,000 heavy-load trucks with better technical and economic parameters were added to the vehicle fleet of the Soviet Union.

The vehicle fleet of the CEMA countries will considerably increase during the current 5-year plan. In the Soviet Union, 2.1 to 2.2 million motor vehicles, including 800,000 to 825,000 trucks, will be manufactured in 1980. A great deal of attention will be paid to the planning and manufacture of motor vehicles which will reduce the pollution of the environment.

Water Transport

The importance of maritime transport is considerable. The countries of the socialist camp shipped nearly 25.7 million tons by sea in 1976, compared to 6.2 million tons in 1960 (a 4.2-fold increase). Sixty-eight percent of the transport fleet of the CEMA countries consists of vessels for the transport of dry goods, and nearly 32 percent is made up of tankers. In addition to the quantitative increase, the qualitative indicators of the fleet have also improved: 59 percent of the aggregate tonnage consists of ships built less than 10 years ago.

The efficient development and utilization of maritime shipping is promoted by the cooperation agreement on maritime commercial shipping signed by the socialist countries, while the council of cargo vessel leasers and shipowners of the CEMA countries further advances the deepening of integration trends. The council's basic task is to improve cooperation in the field of maritime shipping for the purpose of achieving a rational utilization of the maritime transport capacity available, and to coordinate actions of these countries in connection with the leasing of cargo vessels from capitalist states.

Harbor management, an important element of the material-technical foundation of maritime transport, is showing considerable improvement. The main directions of this development are: better technical supplying of existing harbors and equipping of new ports, broad-range specialization of harbors, creation of mechanized transloading centers, and introduction of the most modern procedures for the processing of shipments. In accordance with the CEMA transport cooperation agreement, important measures are being taken in the 1976-1990 time frame to expand and modernize existing harbors and build new ones.

Recently, the performance, capacity and speed of river vessels has increased. New ports have been built, old ones renovated, and their transiting capacity has been raised.

In the mutual relations of CEMA countries, the foundation of the development of international waterways is the Danube. This major waterway has a length of 2,857 kilometers, and 24 large ports on the river handle more than 100 million tons of freight daily. The Danube Commission ensures the control of international shipping.

The CEMA countries are preparing a plan for the creation of the Danube-Oder-Elbe waterway. The importance of the Danube as the most important international river waterway will be enhanced with the construction of the Rhine-Main-Danube Canal, which will make it possible for mixed shipping vessels (river and maritime) to reach the Atlantic Ocean from the Black Sea through the Danube.

The further technical development of the fleet will be aimed at raising the efficiency of navigation on the Danube and increasing the role of river transport. Prospective plans call for the modernization of 10 ports on the Danube and 5 on the Elbe by 1990.

Air Transport

In 1976, the length of the socialist countries' air routes totaled more than 1,324,000 kilometers. The air-route network increased more than fourfold compared to 1950, making the growth rate of the air-route network one of the fastest--after that of pipelines--compared to other types of transport. The regular air lines of the CEMA countries fly over 70 air routes to 82 other states in the world over 310 air routes.

Modern, new, comfortable and fast aircraft are used on the air routes. The fleet is being replaced by planes with new and better technical-economic parameters (TU-154, IL-62 and TU-134A).

The putting of additional planes into service has been planned in the 1976-1980 time frame. Nowadays, the TU-144 supersonic passenger transport plane is being used increasingly. The airport and air terminal network will be expanded and modernized. The development, modernization and specialization of ground services and the establishment of a modern control system for air transport are on the agenda in several CEMA countries.

The expansion of the efficiency of the material-technical base of air transport means and their systematic utilization are further advanced by the CEMA agreement signed in [East] Berlin in 1965 on the cooperation of air transport enterprises in their operational, commercial and financial activities.

In the framework of CEMA, questions related to the training of flight personnel, improvement of air technique, and operational and commercial activities are being successfully solved.

In 1974, the CEMA countries signed an agreement to establish a joint education center for civil aviation flight, technical and dispatcher personnel. CEMA's Permanent Committee on Transportation has worked out a series of proposals concerning the improvement of the forms of cooperation which will be achieved in the joint operation of heavy-load and supersonic aircraft.

On the basis of the above, we can state that in the CEMA countries, a unified transport system is taking shape and developing at a rapid pace and its foundation consists of the national transportation systems.

From the viewpoint of total performance, technical provision and intensity of operations, there is no similar example abroad.

The dynamic development of the economic life of the CEMA countries, the further growth of transport-economic and social relations--both between CEMA countries and between these countries and the industrially developed and developing countries--place new demands on transportation.

In our opinion, the following can be listed among the tasks to be solved and which require the theoretical elaboration of scientific groundwork and of the subsequent practical realization:

--establishment of a unified transportation infrastructure for CEMA countries which meets every requirement of international standards and fully ensures the fulfillment of their domestic and international transport needs;

--development of new and modern means of transportation; (for example, the transport of coal via pipeline in the form of water-coal mixture; pneumatic container transport via pipeline, creation of air-cushioned means of transport, and so on);

--improvement of the planning and management of transportation, increase of its efficiency, development of an optimal division of labor between the various branches of transportation;

--improvement of the organization and technology of transport through the introduction of modern means of transport and the wide use of containers, unit shipments and loading platforms;

--improvement of the management of the CEMA unified transportation system--which will embrace every stage and sector of the transportation process, including the means of transportation, the packing, the storage processes, and so on;

--reduction of the cost of transportation, fuel and energy savings in the course of shipping, creation of means (of transportation) that will not harm nature's ecological balance;

--acceleration of scientific-technical progress and introduction of high-productivity, comfortable, rapid, economic, moving vehicles in the manufacture of means of transport, which will meet transport, automation means and telemechanical requirements and conditions; management of transport and technological processes. Creation of a unified material-technical base for the transportation system;

--insurance of the continuity of transportation, particularly at the points of contact of the various types of transport, reduction of storage operations, and reduction of the cost of loading tasks.

The unified transportation system will occupy a special place in the solution of socialist economic integration tasks. It promotes the strengthening of the economic and social cooperation of the CEMA countries and the fulfillment of their growing mutual needs. The scientific elaboration of the present and long-range developmental problems of the CEMA countries' transportation, the mutual exchange of experiences, their thorough examination and generalization will further advance the development of the theory of socialist management and the improvement of its practice, in order to successfully achieve the common goal, the building of socialism and communism.

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CSO: 2500

MINISTER STRESSES AGRICULTURE'S DEPENDENCE ON CHEMICALS

Budapest MAGYAR MEZOGAZDASAG in Hungarian No 13, 26 Mar 80 p 4

[Interview with Pal Simon, minister of heavy industry by editors of MAGYAR MEZOGAZDASAG--Date and Place Not Given: "There Is No Modern Agriculture Without an Advanced Chemical Industry"]

[Text] It is generally known that material and technical supply are the basic determinants of our agricultural development, development which can be advanced or retarded by them. This generally valid observation is confirmed by the fact that, during the past 15 years, a 1-percent increase in gross agricultural production required a 5- to 6-percent increase in expenditures for industrial products. On the other side, we find that during this same time, a 1-percent increase in final agricultural products was accompanied by a 2-percent increase in imports.

Our agriculture needs the good-quality products of our domestic industry; it counts on them because the agrarian branches can be successful only in cooperation and jointly with the other branches of the national economy.

This observation is particularly true for the relationship between the chemical industry and agriculture. There is no modern agriculture without an advanced chemical industry.

How and to what extent does our chemical industry satisfy the increased demands; how much can agriculture count on products of the domestic chemical industry and to what degree must it rely on imports; what new perspectives of domestic and international cooperation are in the offing?

These questions were brought to Pal Simon, minister of heavy industry--following his speech on Village Radio--by the editors of MAGYAR MEZOGAZDASAG who requested to interview him for the paper.

[Question] How has our chemical-fertilizer industry developed and how is it preparing itself for the newer, mainly qualitative demands of agriculture?

[Answer] During the second, third and fourth 5-year-plans, our chemical industry spent about a quarter of its developmental resources on the advancement and modernization of chemical fertilizer production. As a result, our chemical fertilizer production was increased 6-fold between 1961 and 1975 and 10-fold by 1980. In spite of this considerable progress, only 52 percent of all the chemicals used in agriculture are supplied by domestic production. The rest--mostly potassium fertilizers--is imported because, unfortunately, we do not have potassium-containing raw materials which the industry could utilize.

With the welcome advancement and modernization of our agriculture, the demands are also changing. In addition to the quantitative demands, the qualitative demands are also increasingly coming to the forefront. Earlier, for instance, the use of complex mixed chemical fertilizers was considered as the road to the future by specialists. Currently, demand for a new form of chemical fertilizer, the liquid chemical fertilizer, is emerging. Its effectiveness is attested to by agrochemical and soil biological findings which also support the importance of its use. Nevertheless, it is obvious that the use and application of liquid chemical fertilizers requires a completely new storage system and machine pool for its application. It follows that the conversion to liquid chemical fertilizers can only be gradual because neither industry nor agriculture has the material equipment necessary for it.

Chemical fertilizers containing trace elements are another suitable and modern type of fertilizer. Namely, it was shown that, in addition to the so-called macroelements, the presence or absence of microelements also has a significant influence on the effectiveness of agricultural production. It was also confirmed in practice that not only the lack of phosphorus, potassium and nitrogen, but also of iron, boron, copper and manganese has a detrimental influence on more effective and greater productivity in certain agricultural areas. Therefore, these must be replaced in a suitable manner and proportion. We try to provide as complete help for this as possible within our means.

[Question] How and at what level does our chemical industry satisfy the requirements of plant protection? What characterizes the production of pesticides? To what extent can we count on the domestic manufacture of agents not obtained through import?

[Answer] The rate of progress in the production of plant-protective chemicals is far exceeding the above-mentioned rate of chemical-fertilizer production. Within 10 years, the production of pesticides increased 30-fold. This is very important since it is known that the import of certain pesticides is currently restricted out of national economic interests. Thus it is the task of the chemical industry to replace by domestic production the pesticides scratched from imports.

In the interest of lowering the import of readymade plant-protective materials, our chemical industrial plants have considerably increased their "packaging" formulation activities recently, and they are importing only the active ingredients of pesticides. This represents a considerable saving in foreign exchange, about 30 percent. The chemical industry also suceeded in solving the production of several active ingredients. It can be said that these can completely replace the products made by the most advanced capitalist companies. At the same time, it cannot be denied that occasional problems and justified complaints have surfaced with respect to the quality of some products. These are often due to not yet complete mastery of the procedures or are related to packaging. Until the machines, techniques, grinding installations and automatic feeders become completely modernized, we cannot, at present, achieve significant improvement in the quality of packaging.

In my opinion, the organization of Hungarian plant protection, the standards and tightness of controls are among the best globally. In spite of this, or perhaps as a result of these strict controls--with the exception of occasional complaints mentioned above--there were no significant qualitative problems with the domestic agents within the past period. This is a favorable qualification for our domestic chemical industry as well.

[Question] What are the plans for further development of the part of chemical industry designed for agriculture?

[Answer] The leaders of the chemical industry and of the companies would commit a great error if they would consider only domestic demand in their developments. In the production of numerous active agents, the domestic demand is less than that produced by modern plants having economical capacity. Thus, in theory, we can follow two types of developmental methods. One: We develop small production capacities to satisfy only our domestic needs. The other: For certain compounds, we develop production capacities surpassing domestic demand, export these products and use the foreign exchange earned to import some other herbicidal compounds. The profitableness of this second approach is obvious because we could concentrate our meager means to much fewer areas and could accomplish a much more economical and effective development.

After all, the recently signed Soviet-Hungarian agrochemical agreement also serves similar or comparable purposes. According to it, we will specialize primarily in the production of plant-protective compounds and will receive from the Soviet Union other chemical industrial materials, the so-called intermediates needed for the production of pesticides.

[Question] How do you judge, comrade minister, the work of BCR [expansion unknown] established through the collaboration by the chemical industry and agriculture. Can we expect cooperation of a comparable level and extent?

[Answer] Through collaboration by Chinoin, the Pharmaceutical Works of Kobanya and the Agricultural Combine of Babolna, the manufacture of premixes was started which replaces imports. The name of the companies hallmarking joint BCR ventures is good and is also internationally acknowledged. We can safely state that this joint venture with the collaboration of the chemical industry and agriculture is a new and very appropriate initiative. The production capacity developed here--together with others--currently satisfies the premix requirements of agriculture. Thus, in this area, no further development is needed in the near future. However, the increase in collaboration in the interest of vertical development was mentioned. Namely, we would like to collaborate with our capitalist partners not only in feed production but also in the manufacture of some additives needed in the feed mixtures. This can lead to the expansion of the joint BCR venture and to increased collaboration. As for the chemical industry, it will gladly receive and support every initiative which serves to establish the joint interests of producers and consumers, as well as modern and economical production.

To stay with the example of BCR and feed production: We know that good quality feeds with modern composition are needed to raise the standards of feed management and to improve feed conversion. In this, the chemical industry has its uniquely important role since the so-called feed additives, which make possible the better utilization of feeds, are produced by them. Therefore, we have to see to it that the lysine, methionine, vitamins E, B_{12}, and so on, requirements of agriculture are met. To satisfy these demands, we are also leaning on cooperation with CEMA. For instance, we would like to contribute to the establishment of a large installation for methionine production and use it to satisfy Hungarian needs.

[Question] International cooperation was already mentioned tangentially. Could we elaborate on it? What do we contribute to and what can we expect from this cooperation?

[Answer] Indeed, international cooperation has been one of our most important methods of development not only in the field of agrochemistry but also in other areas of the chemical industry, both in the past and in the future. Namely, selective development cannot be perceived without international cooperation. We are a small nation and, therefore, we cannot engage in every subject. As I mentioned earlier, we can effectively spend our meager means on only a few subjects. What these are? Those, of course, where we have favorable resources. To stay with the chemical supply of agriculture, we consider plant-protective agents as the primary production branch where the most favorable conditions exist for international cooperation. Namely, in our advanced pharmaceutical industry and at our other biological research sites, the intellectual talent needed for development is available. There is very considerable application of technological know-how represented and embodied by the high level of plant protection mentioned earlier. The raw-material supply, available in Hungary through the development of the petroleum chemistry, is considerable from the aspect of future advancement. And the development, especially export-oriented development, of plant-protective chemicals corresponds particularly well with our goals because--compared to other production branches of the chemical industry--it requires specifically little energy. At the same time, there are some agricultural chemical products which require considerably greater energy expenditures for production: these are chemical fertilizers. Therefore, our future goal is to purchase high-energy products for our low-energy ones. This is being realized in the Soviet-Hungarian Agrochemical Agreement already signed.

Technical-scientific collaboration is a very important factor in international cooperation. We want to extend it both to research and to the purchase of licenses.

Research is also an expensive activity. It is said that 30,000 molecules must be synthesized on the average to find a single effective molecule which can be utilized somewhere.

It follows unequivocally from the example mentioned that we are looking for partners who will help us to put our new molecules into circulation on the one hand, and with whom we can exchange our new molecules and thereby we can help each other to widen the choice of chemicals used for plant protection, on the other hand. License agreements can be made in this manner. Because it is shown by international practice and by our own sad experience that, in this field, owners in general will only sell licenses if they receive similar services from the partner.

If we want to keep up with progress, we must find partners who have already achieved certain results. One need not, must not start everything, always anew. It is advantageous to join work which is already in an advanced, progressive phase.

Of course, mutual interest is basic in every international cooperation. I sense that I succeeded in illuminating the possibilities which create mutual interests in the field of production and research. In conclusion, I want to add the idea of trade cooperation. In the course of our discussions aimed at collaboration in the field of both agrochemicals and other chemicals, we are examining the possibility of market sharing because it is conceivable that our partner has a well-developed sales network in a given market which we can use in the course of collaboration to trade our own products. At the same time, in other markets, we can have connections where we can forward to advantage the products of our partners. In this manner mutual interest, without which there is no international cooperation, can be established.

2473
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LONG-RANGE POWER INDUSTRY DEVELOPMENT PROBLEMS DESCRIBED

Warsaw ENERGETYKA in Polish No 3, Mar 80 pp 87-88

[Article by Sergiusz Minorski, doctor of engineering: "Problems in the Development of the Power Industry in Poland, 1980-1990"]

[Text] Within the framework of the Guidelines of the Central Committee for the 8th PZPR Congress, the Power-Industry Section of the SEP [Association of Polish Electrical Engineers] together with a broad aktiv of power engineers discussed the problems in developing the Polish power industry during the period to 1990. This article briefly discusses the conclusions of the discussion.

From the experiences of recent years, we know how greatly the socioeconomic development of the country depends on the properly planned development of the power industry during the 1980-90 decade. This important sector of the economy ought to have special attention devoted to it. We should strive for longterm development plans with lead times of 20 to 25 years and programs to be implemented with lead times of 10 to 15 years. These plans and programs should be widely discussed, among others by the aktiv of scientific-technical associations. After power-industry plans have been adopted and confirmed, concessions should not be permitted during the course of their realization without the simultaneous introduction of other changes that result from all the economic factors.

Starting with the actual gross need for electrical energy, which in 1960 was 29.3 Terawatt-hours [Tw-h], in 1970, 64.5 Tw-h, and which in 1980 will reach 130 Tw-h, we should expect that in 1985 it will be around 174 Tw-h. At the end of the decade, i.e. in 1990, the gross need for electrical power will amount to 230 Tw-h. It is necessary, however, to note that according to some disucssants the need has been underestimated, since it could be on the level of 254 Tw-h.

In contemplating the necessary growth of power capacity to be installed during 1980-1990, it should be taken into consideration that in 1978 the capacity installed amounted to 24,000 Megawatts [MW] and the average deficit reached 1,300 MW, with a maximum of 3,800 MW. With a goal of eliminating the power-capacity deficits, we should have at our disposal an installed capacity of at least 54,000 MW, i.e. 2(24,000 + 0.8 x 3,800) in 1990. Taking into account the necessity of withdrawing from operation equipment of a capacity of about 2,000 MW, we should install at least 32,000 MW (54,000 + 2,000 - 24,000) from 1979 to 1990, 29,000 MW of this from 1981 to 1990.

Such an investment program in power plants requires immense efforts and huge inputs of capital, material, and task fulfillment. Therefore, simultaneous efforts aimed at further rationalizing the use of electrical energy in the national economy and especially the genuine lowering of the energy-intensiveness of industrial production will be essential.

The growth of the power capacity by 29,000 MW during the 1981-1990 period, structurally divided, should look approximately like this: 8,300 MW (29 percent) in power generating plants using brown coal (Belchatow, Zatonie, Legnica); 4,880 MW (17 percent) in nuclear power plants (Zarnowiec and Kujawy); 4,400 MW (15 percent in public-utility heat and electric generating plants; 920 MW (3 percent) in industrial generating plants; 2,900 MW (10 percent) in hydroelectric power plants (Zarnowiec, Czorsztyn, Mloty, Ciechocinek, Wyszogrod, Solec Kujawski, Grudziadz, Niewistka); 7,600 MW (29 percent) in generating plants using hard coal, which closes the balance of the power capacity (Polaniec I and II, Opole, generating plants in the Lublin Coal Basin, Dabrowa Tarnowska, Koniecpol-Szczekociny).

From the enumeration of the proposed facilities presented, we can see how difficult the realization of the tasks will be. If we consider that it would be difficult to propose additional or alternate locations we can call the outlined plan one with no reserves. Of the given 29,000 MW in 1981-1990, 12,500 MW should be installed during 1981-1985 and the remaining 16,500 MW during 1986-1990.

The plan for 1981-1985 should include the installation of 4,700 MW in generating plants using brown coal (Belchatow and Zatonie), 400 MW in the nuclear plants Zarnowiec, 1,800 MW in industrial heat and electric generating plants, 1,000 MW in hydroelectric plants 9 (Czorsztyn, Zarnowiec, and Ciechocinek), 3,600 MW in generating plants using hard coal (Polaniec and Opole) and an additional expansion by 1,000 MW of the Dolna Odra generating plant.

The structure of the country's fuel base compels us to exploit brown coal to the maximum degree. Unfortunately, during the last 10 years geological exploration was not conducted intensively enough. Certainly, the possibility of uncovering favorably located deposits of brown coal still exists; we should carefully develop intensive searching for such deposits using the available modern techniques.

Simultaneously, domestic transmission capabilities of the electric power network must be developed. In connection with this during 1981-90 it will be necessary to build: 10,000 km of 750, 400, and 220 kilovolt [KV] lines; 13,000 km of 110 KV line, 78,000 km of medium-voltage line, 51,000 km of low-voltage line. This adds up to 150,000 km of line of all voltages, and thus agrees with the growth of the length of line by 25 percent in comparison with the level in 1980.

The power capacity of the transformer stations must grow proportionally to the growth in the power capacity of the generating plants; at the same time, we cannot forget about the necessity of making up the deficiencies in the equipping of the previous years. The power capacity of the transformers installed in the stations and generating plants at present amounts to about 90,000 megavolt-amperes [MV-A]; in 1981-90 it will be necessary to install more than 100,000 MV-A, of this 30,000 MV-A in stations of the highest voltages, 25,000 MV-A in stations of 110 KV, and 20,000 MV-A in stations of medium-voltage. Moreover, in 1981-85 it will be necessary to turn over to reconstruction 11 220-KV stations, 121 110-KV stations and 11,000 low-voltage stations; and 2,000 km of 220-KV line, 7,000 km of 110-KV line, 44,000 km of medium-voltage line, and 52,000 km of low-voltage line.

The growth of the generating capacities of the generating plants and of the technical repair-investment support facilities makes the rapid shift to modern, industrial methods of construction essential. In every five-year period, regardless of the expansion of the existing support facilities, it will be necessary to build one or two plants essential for the construction of modern generating plants and at least two or three plants for the construction of the electrical networks. It will be necessary to expand production potential: plants for mechanical and plastic processing, a base for overhauling transformers, places for pipe bending, testing rotor overspeed, iron and steel castings plants; plants for prefabricated products and concrete poles, plants for steel structures, plants for apparatus for the electric network.

The construction of generating plants should be based on power units of a 360 MW capacity in plants using brown coal (after 1987, 500 to 600 MW), 500 MW in plants using hard coal, [and] 1,000 MW in nuclear plants. In heat and electric generating plants power units of the BC-50, BC-100, and BC-180 types should be used; and their upper parts should be based on boilers of the WP-120 and WP-200 type. In order to limit the use of water, it will be necessary to introduce dry condensation or cooling with the use of binary cycles.

The construction of the electrical-energy network should be based on appropriately high-quality parameters. This concerns the expansion of the 400-KV network, the double or even multiple circuit transmission lines, transformer stations of the highest voltages with at least two transformers, medium-voltage and low-voltage cable lines, and also 110-KV lines, the gradual introduction of stations with SF6 gas insulation.

In connection with growing difficulties in supplying materials, machines, and equipment for the power industry, a pressing need for expanding the basic factories producing equipment for generating plants, heat and electric generating plants, electrical energy network arises. It will be necessary, then, to balance the total potential of the presently enlarged Ministry of the Power Industry and Atomic Energy and of the country's industry as a whole and make decisions which will markedly improve the supply of essential materials, machines, and equipment for the power industry. All supplies must be included in this balancing; thus not only those for investment purposes (construction, installation) but also operating ones, including transportation, communications, telemechanisms, mechanization of work, and live-line work.

With the goal of fulfilling the outlined construction program for generating plants using brown coal, the creation of practically new industrial branches working only for the brown-coal mines is necessary. Moreover, we ought to create at least two plants for hydrotechnical and construction work, specializing in repairs of water structures in generating plants, raising wet slag piles and repair-construction work in industrial buildings.

Within the framework of scientific research work we should undertake as quickly as possible studies on the effectiveness of centralized heat-generating systems and outline directions for economically meeting the heating needs of society and the national economy; we also should intensify and coordinate on a national basis research on new energy sources, i.e. on solar energy, heat-pump systems, biomass installations, etc. Work aimed at introducing fluidized boilers should also be stepped up.

Successfully realizing the huge tasks of the power industry as outlined [above] depends on ensuring [the quality] of the essential personnel of this subbranch, through specialized training of new personnel, improvement of the skills of the present personnel; broadly conceived mechanization of work and automatic processes; continual improvement of the organization of work and management methods; and also on the application of appropriate economic incentives, which would make the power-industry profession more attractive.

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CSO: 2600

POLAND

LONG-RANGE ROAD CONSTRUCTION OUTLINED

Warsaw MOTORYZACJA in Polish No 2, Feb 80 pp 39-42

[Article by Czeslaw Krzywasz, director of the Central Administration of Public Roads: "One Hundred Sixty Years of Road Construction in Poland"]

[Text] Growing tasks and organizational dualism raised many critical remarks by voivodship administrations, the Supreme Chamber of Control, the Finance Ministry and other organizations concerning the utilization of equipment, material and personnel bases in road construction.

The analytical studies of the existing organization, very sensitive to opinions and by the nature of things being the object of interest of the government and the public, began in 1970. With a view to achieving appossibly objective appraisal of the existing organization, the experience of foreign countries has been consulted. The representatives of road engineering acquainted themselves with the road engineering organizations in all the important countries of Western and Eastern Europe and the United States. Based on many analyses, comparisons and discussions, two basic organization variants were developed in 1974:

Variant I--organizational uniformity at the central and voivodship (later regional) levels, with organizational division at the operating-implementing level, i.e., the domain of state roads and the management of local roads.

Variant II--organizational uniformity at all levels of management.

After many discussions, the superior authorities accepted variant II for implementation. The state administration reform carried out in 1975 had an important influence upon the choice of variant II, introducing a two-level system of management. By the regulation of the Council of Minsiters of 24 May 1975 a uniformed road-construction organization was introduced in Poland.

The new organization produced the following results:

--reduced the number of administrative units at a level,

-- made the practice of uniform personnel possible;

-- brought about the rise of the standard of work quality;

-- enabled the practice of a uniform policy in investment and the programming of the development of the road network and of technical material facilities.

In 1978, a new law draft for public roads was developed to be taken up for deliberations in the Diet in 1980. The mentioned draft introduces a series of changes in the sphere of competence, financing and interdependence in relation to other branches of the national economy, administration and road management in Poland. It is a truism to claim the great accomplishments of the 35 years of the Polish People's Republic. However, too often we forget what state we came out of and what we have achieved in these years. It appears that the anticipations from 1946-47 for 1960 as well as the forecasts worked out for 1975 and 1980 have been materially surpassed in their implementation.

Within the 35-year period of the Polish People's Republic in the network of roads:

-- 54,000 km of new roads were built;

-- 86,650 km of roads were modernized;

-- about 5,000 km of bypasses of cities and settlements were constructed;

-- 253,770 m of permanent bridges were constructed or rebuilt;

-- over 500 km of four-lane and speedway roads were accomplished;

-- the increase of the road network density was achieved from 29.2 to 46.8 km/100 km^2;

-- the employment increase of personnel with higher education was reached from about 450 persons to 3,600 persons;

-- the increase of the mechanization of operations was attained from 3.0 km/1 operation to 11.6 km/1 operation;

-- the technique and technology of road and bridge works were modernized substantially;

-- a sufficiently high degree of supplying the needs of crews (rest, medical care, work and housing conditions) was reached.

One should always remember that the attainments of the past must arouse esteem and recognition, be a model and source of knowledge, but the main thing is always what the future is going to be. The further rapid social and economic development of the country requires effective transport services in which motor transport has the basic share (bulk-freight transport).

From the experiments and studies carried out, it ensues that motor-transport volume will increase from 863 million tons in 1970 to 4.8 billion tons in 1990.

A serious quantitative increase of traffic and changes in its structure create today the following main problems connected with road-construction activity:

1. The great increase of the volume of heavy vehicles causes the destruction of road surfaces by vehicles considerably quicker today than it did in the sixties.

2. A considerable development of motorization in the seventies causes the exceeding of traffic capacity on a number of roads, creating growing difficulties in traffic, which has a direct influence upon the increase of motor-transport costs through substantial fuel consumption and driving-time extension.

3. The rapidly increasing traffic flow rate on the roads made the safety problems of road users more acute.

A. Appraisal of the Road Network Condition

The intensive modernization of the road network in the Polish People's Republic produced undeniable results for the national economy. The program for modernizing the road network was carried out under the favorable conditions of uncongested traffic, while in a situation where shortages of resources appeared, constructions securing principally contemporary needs were built foreseeing at the same time the necessity of reinforcing road surfaces in the following years. Due to considerable increases in the load of roads in the seventies, caused by the intensive development of the national economy and also to lagging in surface reinforcements and repairs, the roads were worn out and their technical condition worsened. In the last decade, resources for maintenance works were successfully ascertained, whereas the outlays for construction and major repairs are insufficient in proportion to the increasing load of roads.

The comparison network of the condition of the road with the traffic situation allows us the following appraisal of roads from the viewpoint of their fulfillment of transport needs:

1) Outstanding repairs on state and local roads are said to amount to over 30 percent of the length of hard-surface roads. The intensification of roads for repair in the next years requires an appropriate increase of financial outlays and materials of good quality and is a necessary condition for maintaining effective functioning of motor transport on the existing road service.

2) The condition of bridge structures on state and local roads also requires prompt improvement. There are many temporary bridges, with lowered load-carrying capacity, which require prompt rebuilding.

3) The increase of traffic volume causes the exceeding of traffic capacity. Most serious traffic jams occur in the regions of urban industrial centers and on most traffic-congested sections of main routes. The construction of four-lane roads undertaken in the seventies brought about a considerable improvement of traffic conditions on some of these roads. Yet the rapidly growing number of exceedingly traffic-jammed roads creates a need for the intensification of measures to increase the capacity and to improve the conditions of traffic safety.

4) The density of hard-surface roads in Poland averaging 46 km/100 km^2 is characterized by high irregularity. The south and the west of the country have relatively high density of hard-surface roads, corresponding in principle with transport needs, whereas in the eastern and northern regions there are exceedingly few hard-surface roads, which makes their economic development difficult.

The most urgent need for the increase of hard-surface roads is in the voivodships of Chelm, Zamosc, Przemysl, Lublin, Biala Podlaska, Bialystok and Suwalki.

5) The situation pertaining to road-traffic safety is distressing. An especially negative fact is the considerably higher percentage of pedestrians among casualties than in most other countries. The coexistence of motor traffic with that of pedestrians, farm tractors and horse-drawn vehicles on most of our main roads constitutes real threat to the safety of road users. Also distressing are the numerous occurrences of lateral collisions. This also refers to those roads from which pedestrian and cart traffic has not been eliminated and on which crossings have been left at the level of all other road intersections.

Accident threats on main communication junctions burdened with high traffic can effectively be eliminated only by the construction of rapid-traffic roads (speedways or expressways) on those junctions designated exclusively for the rapid traffic of motor vehicles and isolated from local traffic.

From the experience of other countries, it ensues that almost nowhere was it possible to outdistance the development of communication systems with regard to the development of motorization. However, the road-network repair needs are very urgent and require serious intensification of work in the next years.

B. The Outline of the Implementation of Rapid-Traffic Roads

The studies pertaining to the planning of the development of the road network in connection with the country's territorial development were made at the beginning of the fifties. Taking into account the rich achievements of the studies done through many years, the current outline of the road-network system has been worked out in Poland. The basic element of the road network--the rapid-traffic system--was accepted by the Government Presidium in its Decision No 28/72 of March 15, 1972.

The specifications of the ultimate shape of the road network were done in the Road-Network Development Program In Poland, carried out in cooperation with the UN-UN Development Program.

Within the road problems, a particular position is occupied by rapid-traffic roads whose specificity is based on the following elements:

1) The construction of rapid-traffic roads is very expensive, yet profitable on those sections where traffic volume approaches about 10,000 vehicles per 24 hours. Returns on investment outlays incurred will follow within 4 to 6 years.

2) The realization of rapid-traffic roads is an activity also benefiting future transport development, because at the moment of their being handed over for use their reserve capacity suffices for many years.

3) Once tolls are established, rapid-traffic roads may become a cumulative source of financial resources for road-network development.

4) The traffic safety is incomparably higher than on generally accessible roads (three times fewer accidents, including five times fewer fatal ones, than on ordinary roads).

Rapid-Traffic Roads

Detailed studies and the analyses of the needs arising from the vigorous development of the national economy allowed establishing the main road junctions in the country with a total length of about 7,000 km which ultimately should reach the standard of rapid-traffic roads.

As it results from the performed analyses of the road network and from traffic forecasts, between 1985 and 1990 traffic capacity will be exceeded on about 5,000 km of roads situated within the rapid-traffic highways.

This means that in 1980 the optimum length of rapid-traffic roads should amount to about 5,000 km. Considering that about 700 km of rapid-traffic roads will be built in 1980, to evenly satisfy traffic needs in the 1981-90 decade about 4,300 km of expressways should be built.

C. Proposal of Modernization and Development of Road Network Program for 1981-1990

Evaluating the real financial, equipment and material possibilities of the country and the necessity of securing a good transport service for the national economy and the public, and at the same time taking into consideration economic, social and other factors, the following program of action is being proposed to be accepted for 1981-90:

1) In order to improve the road-network condition, for a general overhaul in 1981-90 should be submitted:

-- 50,000 km of state roads,

-- 60,000 km of local roads.

2) In order to secure routes for heavy motor transport, within the period ending in 1985 the basic network of 10 tons of capacity per axle and 33,000 to 35,000 km of length should be made available for use.

3) In order to secure a proper development of regions with low-density road networks, in 1981-90 about 35,000 km of new local roads should be built, which in 1990 will allow reaching a density index for the hard-surface road network of 60 km in the country.

4) Rapid-Traffic Roads

Since the great overstrain of the capacity of the existing roads will have a hindering impact on the development of motor traffic and the country's actual possibilities will not allow the implementation of the 4,290-km optimum program in 1981-90, it is being proposed to accept the construction of rapid-traffic roads exclusively on the most congested road sections essentially vital for the national economy.

In 1981-90, it is being proposed to construct:

a) rapid-traffic roads on sections totaling 2,200 to 2,300 km of length:

-- E-22: Przemysl--Tarnow--Cracow--Katowice--Opole--Wroclaw,

-- E-16: Gdansk--Torum--Wloclawek--Lodz--Katowice--the state border--Ostrava,

-- E-8: Minsk Mazowiecki--Warsaw--Poznan,

-- the eastern and northern Upper Silesia Industrial District bypass (completion),

-- Warsaw--Radom--Kielce--Cracow,

-- Warsaw--Plonsk and Warsaw--Wloclawek,

-- Swinoujscie--Szczecin--Gorzow-Zielona Gora-Legnica,

-- Warsaw--Ostrow Mazowiecka,

-- Wroclaw--Kepno and Sieradz--Lodz,

-- (Warsaw)--Kurow--Lublin--(Zamosc) and Lublin--Lubartow,

-- Bydgoszcz--Grudziac,

-- Poznan--Pila and Poznan--Leszno (Wroclaw).

b) To construct about 300 to 400kkm of four-lane roads for normal traffic at the outlets from large cities and in industrial districts.

The construction program of rapid-traffic and four-lane roads totaling 2,500 to 2,700 km of length, presented for realization in the 1981-90 decade, is being proposed to be taken into account in particular 5-year per periods as follows:

years 1981-85: 1,000 km,

years 1986-90: 1,500 to 1,700 km.

Experience from the implementation of the road-construction development program in 1976-79 points out that its plans require the maximum of stabilization, for indeed changes inasmuch as materials, outlays and work location are concerned lead to a considerable reduction of potential and to an insufficient preparation of projects for construction. It would be of great value to gain, for the proposed and accepted program, the guarantee of stability, mainly so far as the proposed routes for realization and the time limits of starting their construction are concerned. The rate of their handing over for use would be made dependent on the possilities of the national economy, which it is possible to specify as the 5-year plans are being worked out. In the implementation stability of the program, one should watch for additional production resources, a proper utilization of productional and material bases and possibly for a flawless preparation of documentation sufficiently ahead of time.

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POLAND

OFFICIAL DISCUSSES CROP PRODUCTION IN 1980

Warsaw RADA NARODOWA-GOSPODARKA-ADMINISTRACJA in Polish No 6, 25 Mar 80 pp 33-35

[Article by Zenon Kazmierczak, department director, Ministry of Agriculture]

[Text] The productive cycle in the cultivation of crops for all practical purposes begins with the harvesting of cole and winter barley. At that time, the tasks involved with readying the fields for the following year's crops commence. Thus, we must return in these remarks to the second half of 1979 to show the certain circumstances and conditions for the harvests in the current year.

> Generally, the climate conditions in the second half of 1979 were favorable for the present cycle of plant production. Early harvests--although not abundant--made it possible to carry out cultivation processes for the entire agrotechnical sector. There was significantly more post-harvest plowing than in 1978. Also, nearly twice as many stubble crops were sown. Farms had plenty of time for the proper preparation of sowing areas for cole and winter grains, and they took full advantage of the favorable atmospheric conditions. The winter wheat sprouted right on schedule, and a long and warm autumn (with the exception of several days in late October-early November) made it possible to carry out the winter plowing and autumn cultivating work, especially on the lands used for greens.
>
> If here and there the winter plowing was not done in autumn, which certainly is rare, that is exclusively the fault of the farmer. There were no circumstances which would have hindered the achievement of these tasks. The state of winter grain and turnip harvests this past November was about 1-2 points (on a scale of 5) better than in the previous year. Winter crops sprouted gradually, and had become hardy by winter.

> The course of the weather in December, January, and February was also favorable for the wintering of the plants. Nearly nowhere in the entire country did extreme conditions erupt at this time, which would have caused serious losses.

In sum, both in the second half of last year and in the first quarter of the current one, atmospheric conditions favored plant production. There are positive indications for crop forecasts in the current year. Unfortunately, less fertilizer was applied in autumn 1979. In many planted areas, one could see clearly "starved" crops. And this is the negative side, which undoubtedly will influence the size of this year's crops and harvests.

After a very difficult and, for grain and cole, an unproductive 1979, the increase in global crop production planned for 1980 is large, measuring nearly 11 percent. Such a large tempo of growth will be influenced primarily by the planned production of grain, industrial crops, and feed crops. The realism of the adopted growth indicator comes from the relatively low crops and harvests of grain and cole last year, as well as from the relatively good state of winter crops. One must also figure on a certain amount of loss from plantings, but they should not be greater than the multiyear average.

The guiding tasks for 1980 both in agriculture as a whole, and in the area of plant production, are outlined in the Resolution of the PZPR Eighth Congress. The key problem is the production of feed, for the situation in the feed balance is exceptionally tense and complicated. This results from the low grain crop in 1979, and also from the need to limit the imports of concentrated feed.

The most difficult task to achieve is increasing the production of grain. The planned increase in its area is only 5-6 percent greater in comparison to the area harvested in 1979, although in absolute numbers that is almost 500,000 hectares. If the harvested area of 1979 is taken as 100 percent, the growth indicators in 1980 would amount to:

--grain	105-106 percent
--sugar beets	121 percent
--oleiferous	224 percent
--pulse crops	104 percent
--corn	101 percent
--fiber crops	115 percent
--vegetables	103 percent
--potatoes	92 percent
--general feed crops	83 percent

The proper indicators have been established for individual provinces and gminas, which are known to agricultural services. They vary in different regions of the country, because the directions of production resulting from the general principles of the regionalization of plant production are varied. But at least two plants are grown in all gminas, namely potatoes and grain. I believe that there is no gmina in Poland where all potential for increasing the area sown with grain has been exhausted. For the current year, we accepted just this premise, even in reference to those gminas in which many sugar beets, industrial crops and vegetables are grown, and where there are many orchards. Hence the relatively large, nearly 500,000-hectare, planned increase in the area under grain cultivation on the nationwide scale.

In the overall feed balance, grain is about 32 percent of the feed units, and 29 percent of the protein. Over 64 percent of its total yield is targeted for feed, hence its decisive role in the feed economy.

There are many factors aiding the realization of increased grain production. Cultivation technology has been widely mastered, and we have good seed. The distribution of the technical means of the grain productive process is well advanced. Indeed, the farmers demand more fertilizer than can be delivered, although at the current level of fertilization, calling for 200 kg of NPK per hectare (not all at such a low level), better results could be attained if both the principles of agrotechnology and the proper methods of using fertilizer were universally applied.

> If we take the entire area on which all kinds of grain are grown, then winter grain accounts for 54-58 percent, and the spring grains for 42-46 percent. In autumn 1979, over 600,000 more hectares were sown with winter grain than in 1978. That is undeniable progress, but in order to achieve the tasks set for grain in general, taking into account the sowing of winter grain along with the average multiyear winter losses, the area of spring grains sown in the current year should amount to at least 352,000 hectares. The directors of the gmina agricultural services have received specified tasks for their territories in this field.

The next plant figuring into the feed balance, chiefly for hogs, is the potato, which covers 37 percent of the feed needs for hog herds. In this year and the years immediately ahead, our economy will need 45-50 million tons of potatoes. The need for potatoes has not diminished for several years. If in a given year production dropped to the level of 39-41 million tons, then disruptions in pork production and also the supply of the population and potato-based industries would follow. The main task charged in the production of potatoes is to maintain production at the level of 48-50 million tons, [illegible]creasing the area under cultivation while increasing the yield. An [illegible] in potato yield is thus the basic direction in growing this plant.

> The yields and harvests of potatoes in 1979 were good. But when viewed in terms of potato crops over the last 10 years, this progress is unsatisfactory. During this period, the

> average yield has remained at the level of 184 q/ha. This past year, the reasons for the low potato yields were subjected to an intense analysis. Among the reasons, improper attention to sowing times took first place. Next came the insufficient spacing of plants per hectare, then the quality of seed potatoes and unsatisfactory cultivation work, plus great losses from mechanized harvesting. The gmina agriculture services will have the most to do in removing the abovementioned reasons. The essential matter is to remind the farmers of the basic principles of growing potatoes.

In Poland several specialized production bases for potatoes have taken shape. They are in the Bialystok, Lomza, Siedlce, Sieradz, Biala Podlaski, Suwalki, and Koszalin provinces. Farmers in these provinces harvest an average of even over 300 q/ha annually. Such a production level assures high profitability, regardless of whether the potatoes are sold directly or consigned for feed. Therefore, in the current year we desire to continue the direction of activity designed to intensify the production of potatoes.

Such classic feed crops as alfalfa, clover, beets, corn, and pulse crops have assumed great importance in the growing structure and the feed balance. In cultivating these crops, a certain uneasiness arises from the decrease in the area used for growing alfalfa and clover, which actually occupy an area of 970,000 hectares. But in 1976, they were grown on an area of 1,030,000 hectares. We think that in several parts of the country, alfalfa and clover have been supplanted by corn and industrial crops, along with mixed grass and pea vines. The general decrease of land for agricultural use also has a certain role in decreasing the area used to raise perennial pea vines.

The farmers themselves will make the decision concerning the sowing structure of individual farms. They calculate which would be more profitable for them to grow--alfalfa, beet or coorn. It appears, though, that on many farms land given over to growing perennial pea vines has been reduced. After all, it is known that besides being good fodder, they leave an excellent position for the next plants, and produce nitrogen in the soil. In world agriculture we observe a pronounced return to alfalfa and clover. Protein in soy beans, peanuts and fish has become so expensive that the farmers' attention is being directed to alfalfa or to pulse crops such as peas, beans and lupine.

Among the group of fodder root plants, a leading role has fallen to the Poly-Past fodder beets. We have hurdled the earlier barrier to their cultivation--i.e., production of seeds. In the past year we already delivered more seeds than farmers wanted to buy. This year we have enough seeds to double the area under their cultivation compared to last year. The thing here is to convince the farmers of the many merits of fodder beets.

To this end, the methods of feedinghogs with beets have been worked out and introduced.

> First of all, they replace potatoes. Moreover, they do not have to be cooked, which means energy is saved. Fodder beets return good yields even in the poorer 4th-class soils. For these reasons, they have become very competitive with potatoes. It would be worthwhile for the gmina agricultural services to mount continuous efforts to increase the land for growing poly-pats, and to introduce modern methods of producing and feeding them.

In the process of searching for plant protein, again we turn to the group of pulse crops grown for dry "seed." In recent years, progress has been made in raising new strains of peas and lupine. The high prices of imported protein concentrates places the problem of the profitability of producing pulse crops in a new light. This year, we should increase the area under cultivation in the country for pulse crops by at least 10 percent compared to the area of their harvest in 1979. Let us place pease in first place, for their yields in the past three years is shaping up at the level of 18 q/ha and more. We also desire to turn the attention of the provincial and gmina agricultural services to new strains of lupine, although shortages of their seed and problems in supplying farmers with them have emerged. Continued intensive work in both raising and producing their seeds should solve this problem. The gmina agricultural service should therefore inform farmers about this plant group, from which it is possible to obtain a large amount of valuable plant protein.

In growing industrial crops, among which sugar beets, cole, flax and tobacco predominate, the tasks in the current year are similar to those of previous years. The main effort should be directed at increasing yields, especially of sugar beets. The main reason for the stagnation in sugar-beet yields is primarily the small allotment of plants per hectare under cultivation. The optimum allotment should be 80,000 plants per hectare, whereas research conducted by the Sugar Industry reveals that the actual allotment is significantly lower, amounting to 60-65,000 plants and sometimes even less. From this cause alone, the so-called nonobservance of optimum plant allotment, we lose 15-20 percent of the potential crop yield.

The second industrial crop in terms of area is cole. Its cultivation takes up on the average of 350-400,000 hectares. Only in the past year did this area not exceed 200,000 hectares. For the current year, tasks have been increased in the realms of both sowing and planned harvesting. This is vital in terms of covering the needs of the aliphatic industry and also for increasing exports. According to data from the provincial offices, in autumn 1979 nearly three times more cole was planted than was harvested in 1979. The state of the crop in mid-March was satisfactory, even good. There is thus a chance at attaining good harvests.

In the last 2-3 years many different, frequently controversial, opinions have arisen concerning cole, and at this time it would be worthwhile to explain and express our position. Essentially, it concerns the question of what kind should be grown: varieties with high erucic acid content, exclusively non-erucic acid type varieties, the so-called di-erucic acid strains, e.g., those without value in erucic-acid fats and in thioglucose oil cakes.

Today, the more nervous "experts" of the problem would like to grow exclusively the di-erucic-acid cole in our fields. This is also our goal in the area, except that we must take into account the yields of this crop and the income of those farmers who grow it. There is not the slightest doubt that those strains of cole with high erucic acid value must be eliminated from production. But we must remember that our high-acid Gorczanski strain dominates the yields over the non-erucic acid varieties.

Poland is one of the largest producers of cole in Europe, and any mechanical change of the acid-free strains to replace the high-acid ones will cause a decline in yield, obviously in relation to the actual supply of varieties. But this is not a rule that must be followed in the future. National growers and foreign producers use strains and varieties with both one and two acids, which equal the high-acid varieties in yield. France, West Germany and other countries have withdrawn high-acid strains from production. In those countries, however, climate conditions are diffierent than here, especially there are milder winters, and hence there is less risk of frost, which makes it ideal for one- and two-acid varieties.

Despite the certain risk which would follow from the change of high-acid strains of cole in favor of non-acid ones, we must steadily expand the latter in production. The sum of advantages, e.g., our health, good oil cake and the interests of foreign trade justifies this decision in full, even at the price of a certain drop in yield, maybe in the transition period. The realization of such a direction requires, first of all, the preparation of the producers themselves, so that they understand the motives which are guiding us.

We have a program worked out and feasible for replacing the Gorczanski strain of cole with national and foreign non-acidic varieties, and in the near future, also di-acid varieties. This year, we are withdrawing the Gorczanski strain from several of the further western and northern provinces. Next year, that will occur in the remaining provinces. It is vital that this direction be developed equally among the farmers through the involvement of the agricultural services from the gmina bureaus.

Finally, it is particularly worthwhile to once more turn the attention of the gmina agricultural services to the need for disseminating among the farmers the correct principles for the autumn and spring care of cole. These activities have been significantly curtailed by farmers, whose main fosuc has been on fertilizing, especially with nitrogen, which often brings about an affect opposite from that intended.

In the current year we must continue efforts to perfect agrotechnology in the broad sense of that concept. First of all we must perfect those branches of agrotechnology which are in direct contact with the farmers. The first branch is the proper preparation of the field prior to sowing specific crops, the second is the time period for sowing, then there is the entire range of cultivating activities. The farmers must be reminded of these matters at every opportunity, for the shortcomings in this realm are continually enormous. The vital potential of plant production lie behind the improvement of agrotechnology.

Of the entire group of production means, I desire to bring attention to three: namely, seed, fertilizers and preparations for protecting plants.

In 1976-79, there were serious problems with the seed industry, resulting from the low harvests of seeds plus their weak quality. Better harvests of many types in 1979 significantly improves the situation for the current year. In the group of grain seeds we are still not in a state to supply farmers with the demanded number of oats. Their exceptionally low harvests in 1979 along with a large loss as a result of the nonmaturation of the seeds are the chief reasons for the existing state.

> Delivery and demand for barley and wheat is balanced. A perceptible improvement followed in deliveries of fodder seed. Outside of serradella, lupine and clover, the seed enterprises are in a position to supply the required amount of fodder seeds. There are also more of the early and middle maturing strains of corn. We have ready large amounts of grass and fodder beet seeds.

The planned fertilizer deliveries quarantee the use this year of at least 200 kg of N:P:K per hectare. The need for fertilizer is, unfortunately, still greater than the possibilities of supplying it. It is therefore vital to farm rationally with that quantity which we have available. And in this area there is still much to be done. At the level of fertilizing with 200 kg/hectare, one must use this means of production very efficiently.

It is worthwhile recalling some principles of fertilization such as: applying the relationship of N:P:K to the type and wealth of the soil as well as to the needs of the crops, relating the regularity of fertilizing with nitrogen to the regularity of plant development, equalizing the distribution of fertilizer on the ground, and others.

Finally, it is necessary to turn attention to the need for using soil maps. These maps, composed by economic-farming experts, should be a constant aid for the gmina agricultural services. This is especially true of those gminas where the level of fertilization exceeds 250 kg N:P:K.

In practice, we use over 170 different preparations for crop protection.

In the group of insecticides, the situation is favorable and in principle the needs of agriculture are covered. There remain the actual directions touching upon their safe usage and continuous monitoring of the economy of these preparations. It cannot lead to the poisoning of bees, let alone people. Exceeding the prescribed time limit of the preparations, and then attempts to destroy them, is not permissible.

In the herbicide grouping, the situation is very diversified. With economized usage, possibilities exist for introducing weedkilling measures at the level of last year. There is no possibility of completely covering the need for herbicides to destroy grain grass and wild oats. We must sparingly use herbicides to destroy weeds among sugar beets and corn. There is, unfortunagely, a shortage of herbicides for use on potatoes, vegetables and pea vines.

In the fungicide grouping, it is also necessary to observe the principles of thriftly usage. On the national scale, the balance between needs and supplies is very delicate. Needs connected with contractual production in the orchards are met on the premise that there will be an average outbreak of diseases.

All preparations, especially fungicides, have a specified expiration date. This means that we must sell first those supplies from the previous year to avoid loss of their effective action.

This year, on a broader plane, we must use fungicides from the so-called intervening groups based on copper and sulphur. In the dessicants and defoliant grouping it is possible to meet the demands of the farmers. In this group, too, the principles of sparing usage must apply. The principle of dispersing centers for plant protection in a province establishes provincial guarantine and crop protection stations through the participation of the WZSR "Samopomoc Chlopska" organizations.

The matters of rational usage of the crop-protection means have been analytically discussed with directors of the stations at special meetings. It appears that, indeed, in the use of crop protection means there is never too much monitoring. These are chemical agents with very high toxic levels, and they pose serious dangers to the environment. On the other hand, they are expensive and imported in overwhelming quantities, which obligates everyone all the more to their sparing usage.

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CHANGES NEEDED TO INCREASE CROP PRODUCTION

Warsaw NOWE DROGI in Polish No 1, Jan 80 pp 59-78

[Article by Leon Klonica, minister of agriculture]

[Text] The nationwide debate on the guidelines for the Eighth Congress of the PZPR is placing the problems of agriculture and food among the major issues requiring attention. In the period 1971-1979, considerable progress has been reached in food-consumption growth, and particularly in the improvement of the consumption structure consisting of the increase in the amount of items characterized by higher quality and biological value. And yet the tempo of the food-consumption growth maintains the same level (some 5 percent a year) with the population consistently spending over 40 percent of their earnings. The existing difficulties in satisfying the demand for foodstuffs, mainly for meat and its derivatives, make it imperative that the further growth of food production become a priority goal for the immediate future.

The problems of food consumption and agricultural development have never escaped the attention of our party. However, only in the last decade were more systematic and complex activities undertaken; they were exemplified by the program to improve nation's food consumption passed by the 15th plenum of the PZPR Central Committee in 1974, a program jointly prepared with the United Peasant Party. As Edward Gierek noted at the 15th plenum, this program embodied a desire "to make the production of food one of the major branches of national production, being able to fulfill the domestic needs of our country and to create the capabilities for constant and sizable exports." The importance of the resolutions passed at the 15th plenum of the PZPR Central Committee lies in the fact that food production was designated as a nationwide goal for all basic sectors and branches of the national economy whose joint effort determines its fulfillment.

Yet, thus far there have been delays in the realization of the food production improvement program. The tasks in the area of consumption level and the size of food production will not be fulfilled within the established deadlines. The main reason is lower than estimated agricultural production caused by unfavorable weather conditions in the last few years as well as smaller than planned flow of the means of production, especially of mineral fertilizers. Economic conditions have changed as well, bringing forward new phenomena and processes which must be noted now during the verification of the economic-growth assumptions for the coming decade. The general assumptions of this verification are presented in the guidelines for the Eighth PZPR Congress.

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It is a known fact that the tempo of food-production improvement is dependent on agricultural-production growth. In order to keep up with the nation's food needs it is necessary to maintain a 3-percent yearly growth of final gross agricultural production. In the years 1950-1978, final gross production had an average 2.7-percent growth tempo, and final net production did not reach 2 percent (1.9 percent). This points to the significant role of imports in fulfilling the food needs of the country. Bad harvests of recent years in turn prevented the final net production from reaching the levels of the past long-time trend.

It has to be emphasized, however, that considering decreasing land areage, the agricultural-production growth reached in Poland (2.7 percent) is not small and does not differ from the average results achieved worldwide. For the average food-production growth level for the years 1961-1976 in the OECD states (21 most developed countries) reached 2.3 percent; in the EEC, 2.8 percent; in CEMA, 2.7 percent; and worldwide, 2.6 percent.

The guidelines for the Eighth PZPR Congress project final agricultural net production for the years 1981-1985 at a higher level of 12-13 percent, which means a yearly growth tempo of 2.2-2.4 percent. It can be taken as a realistic projection. Maintaining such a growth tempo for final agricultural net production will permit fulfilling tasks related to the improvement of the consumption level and will decrease our dependence on imports of grains and fodders. These imports increased from 2.2 million tons in 1970 to 8.4 million tons in 1978. They were caused by the need to improve at a faster rate the level of food consumption. Imported fodders reached 47 percent of the total fodder use increment (in terms of value). This fact explains why the animal production growth rate of 3.5 percent per year was considerably greater than the plant production growth--2 percent per year.

In the coming decade these relations must change. The main emphasis must be put on the dynamic growth of plant production, the growth rate of which should be considerably greater than that of the animal production.

These circumstances alone point to the fact that deep structural changes will have to be undertaken in agricultural production itself. It is worthwhile to mention that in the past numerous branch programs and government decisions were directed at improving the fodder economy. These concerned, among others, production growth of grains, corn, pods, management of pastures, conservation and drying of fodder as well as manufacture of industrial fodder. Not all of these tasks have been fulfilled, however.

Hence the need for a complex and cohesive concept to improve the fodder economy in the coming decade.

What kind of projections should be introduced into the agricultural production structure? The quantities of animal products we want to produce in the immediate future and later should constitute the starting point for any solution. The projected production of animal products until 1985 is shown in the Table below:

Products	Projections		
	1978	1980	1985
Total livestock meat in thousand tons:	4,356	4,470	5,360
Pork	2,263	2,310	2,700
Beef	1,322	1,310	1,700
Poultry	511	600	750
Milk (in billion liters)	16,6	16,6	19,6
Eggs (in billions)	8,5	8,8	10,0

In order to achieve the projected figures it will be necessary to increase somewhat the amount of livestock. However, the increase in the amount of livestock is not the most important. It is common knowledge that production growth can be also achieved by improvement in livestock productivity, better utilization of the main herd, decrease in the number of failures, etc. It is this direction that should be given the utmost consideration.

It is also important to change the animal-production structure. Development of animal production thus far has been given more dynamics through constant imports of corns and fodders, thus it was achieved mainly by means of livestock increases. This caused a rapid growth rate of the use of corn in animal production. At the same time, there was insufficient increase of milk and feeder cattle as well as of sheep, while the intensification of farm fodder production was slow. It can be assumed that the opportunities in this area have not been fully utilized. Therefore, now we must prepare to put in motion all potential growth reserves for fodder production and consider this task as the key to the intensification of animal production. There is no other more important task in agriculture. And it should be kept in mind that nearly three-fourths of the arable land is used to produce fodder. Our entire agriculture should aim at achieving a maximal growth in fodder production and at better adaptation of the fodder-production structure to the animal-production structure by 1985. This will allow limiting imports of grains and increase our self-sufficiency in the area of fodder stock.

To achieve these aims it is necessary to increase the total fodder stockpiles per feed unit by at least 15 percent by 1985 in comparison with the average amount for the years 1976-1978 (this should include an increase in farm fodders by 16 percent and in concentrated feed by 13.7 percent).

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Production of the required amount of fodder requires changes in the plant-production structure. Until now, the acreage for the cultivation of grains, pods, potatoes, and less efficient feed plants has been systematically decreased. When aiming at the maximal productivity of the fodder acreage--that is, using the smallest arable area per animal production unit--it is necessary, above all, to give preference in the crop structure to those plants which are characterized by the highest yield of feed units or proteins per area unit and which are best used by animals.

The most effective per area unit plants are corn, beets, lucerne, and clover used in mixtures with grass, grains, and intensively fertilized green pastures. Taking this into consideration we project a decrease in the cultivation of feed plants as the main crop and of potatoes by nearly 1.2 million hectares by 1985, thus allowing for the increase of the acreage for the cultivation of grains and feed plants yielding better crops. At the same time, along with the changes in the plant-production structure it is indispensable to intensify further activities leading to increased yields for all plants. Realization of the planned increase in the flow of crop-producing agents of industrial origin (mainly mineral fertilizers and pesticides) will be of major importance. However, in agriculture alone there is much to be done to improve the effectiveness of the utilization of industrial means of production, and to utilize better the agricultural crop-yielding agents. The projected yields in the guidelines for grain crops (30-32 quintals per hectare) and yields for other basic feed plants for 1985 are possible to achieve.

Agricultural-production growth projected now until 1985 does not imply a total liquidation of fodder imports, it only reduces them to 50-60 percent of the present level. The continuation of imports, particularly in the area of high-protein feed, is necessary because of limited production capacities in our country and in order to achieve the projected level of animal production which would allow an increase in exports (without affecting the projected level of consumption) of animal products and consdquently to achieve a zero balance of trade in agricultural products with foreign countries.

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The growth rate and the changes in the agricultural-production structure are dependent on many factors. Above all, we should take into consideration biological conditions which significantly limit, for example, the possibilities to change one type of plants for others, and thus they affect the crops. Our agriculture is also characterized by a complex socioeconomic situation. It is entering, among others, a period of deep changes in the relationships between the basic factors of agricultural production (availability of land, labor, and means of production). This not only complicates the process of defining the optimal level of agricultural production, but above all it hampers a clear specification of basic methods of action and directions which make the realization of plans possible.

The complexity of the situation in agriculture and a unique combination of difficulties bring about a cumulation of several interacting factors which limit growth in agriculture. When planning the growth of production it is necessary to remember among others that the process of reduction of arable land will continue. The tempo of utilization of land for nonagricultural purposes and forestation, although reduced as a result of a bill on protection and recultivation of agricultural land and forests passed in 1971, is still high. In recent years, the area of agricultural land has been continuously decreasing on the average by some 50,000-60,000 hectares per year. In 1979 the area of arable land dropped below 19 million hectares (18,991,000 hectares). Even if we assume that the land-protection bills will be followed almost to the letter, we will not commit a great error by estimating that by 1985 the arable area will drop to about 18.75-18.8 million hectares, and in 1990 it will reach about 18,6 million hectares. The drop of arable land by some 200,000-250,000 hectares by 1985 means that the volume of agricultural production will decrease by some 600,000-750,000 tons of grain units and the difference will have to be produced on the remaining arable land.

Another important phenomenon will be the changes in the agrarian structure of agriculture which will be decisively influenced by the realization of the bill on pensions for farmers and their families. The turning over of land to farmers' heirs in accordance with the provisions of this bill now constitutes the main form of turnover of land among farmers, while turning in land to the state by individual farmers is the main source of the State Land Fund [PFZ].

If we take into account the fact that some 630,000 farmers in the individual sector have reached the retirement age, and some 350,000 are approaching it (over 55 years old) it is obvious that the changes among the people working on the land will affect one-third of the total number of individual farmers.

It is estimated that by 1985 every fourth head of an individual farm will be replaced, and over 400,000 farms will be liquidated mostly because there will be nobody to take over. The PFZ will increase in this period by some 1,5 million hectares.

According to the data from the Central Office of Statistics [GUS] employment in agriculture is exhibiting slow growth. Estimated manpower (full-time employees per 100 hectares of arable land per year) reaches some 28 professionally active, which can be regarded as a significant production reserve. It seems, however, that these reserves were overestimated. Rough estimates of the census show that the available reserves are lower by some 600,000 people. It is a common knowledge also that the quality of labor in agriculture is decreasing, and this is not reflected in the census data. The decreasing quality of labor is a result of the "aging" of the farmer population. In the next 3-4 years some 600,000 people will abandon productive activity due to retirement. It also seems necessary to modify the bases for computation of the active productivity of teenagers due to at least the realized program of secondary education. Also, we must not forget that a farmer and agricultural laborer want to work differently today. They want to have a shorter day as well as vacation time, they want to benefit from the model of socialist consumption, they want to work more efficiently, but also safely and with less effort. The village woman wants to be freed from the harness of hard production duties. And it is because of the high degree of feminization of the farmer profession (some 50 percent of agricultural manpower) that the professional production indexes for women have to be corrected. All of these factors indicate rapid changes in the volume of labor in the future, and a considerably reduced net increment of adolescents entering the productive age will not be sufficient to compensate for the progressing loss.

Thus, agriculture is experiencing a rapid growth of substitutive needs. The loss of land and labor can be compensated only by means of increased quantities of equipment. For this is the true meaning of the development stage entered by agriculture. The qualitative change of reserves in agricultural-production growth means that labor output must become the main source of progress in production. Labor productivity is above all determined by the size of the availability of material means including the crop-yielding factors represented by produce of industrial origin.

There is an increasing need in agriculture for the restoration of physically and morally used up durable property. The mechanization of direct labor in agriculture, measured by the value of durable means per employee, has increased in the past 9 years by some 45 percent and reached the amount of some 220,000 zlotys. It should be noted, however, that the mechanization of direct labor in the entire national economy is more than 45 percent higher than that in agriculture and for the same period exhibited faster growth than that in agriculture. This means that the productive potential in agriculture is growing more slowly than in the entire national economy. It seems that the problem lies not so much in current investments as in the rapid decapitalization of the existing production potential of agriculture. We are dealing with an accelerated withdrawal of parts of property from liquidated peasant farms and with rapid moral and physical wear and tear of machines, equipment, and of some facilities in the socialized sector of economy. The processes of decapitalization and moral wear and tear will show even greater intensity in the coming decade which puts additional demands on investment policies. In any case, the reconstruction investments in the areas of land improvement, electrification, or construction of livestock buildings will have to be much higher in order to halt too intensive decapitalization processes.

In addition to substitutional and restitutional activities, it is necessary to accelerate the technical reconstruction of agriculture particularly in the areas of increased land productivity and modernization of agriculture's machine-tractor park. In order to increase land productivity it is necessary to improve water economy and facilitate land improvement. It is sufficient to recall that the degree of improvement of arable land is low in comparison with needs and by the end of 1978 it reached 62 percent for cornfields and 66 percent for pastures. Only minimal arable land area--510,000 hectares, including 41,000 hectares of cornfields--is equipped with irrigation equipment. Improvement of the production capabilities of land requires greater intensification of investment projects in the areas of fertilization of poor soils, removal of stones from and recultivation of wasteland. It will be difficult to intensify animal production without solving the problem of water supply for agriculture and villages (only some 20 percent of farms are equipped with own or local water access) or providing villages with sewage systems accompanied by construction of waste-treatment plants. It is difficult to imagine modern agriculture without an efficient network of local and industrial roads.

The increased demand in agriculture for an array of material goods and services will be impossible to satisfy fully in the immediate future. The situation in the national economy indicates that until 1985 the growth rate of durable means of production and capital provided to agriculture will be moderate. The insufficient supply of these means will bring a corresponding weakening of the dynamics of agricultural-production growth. Indirectly they also reflect on the maintaining of the growing and very costly fodder imports, which is related to the stagnation of mineral fertilization observed in recent years.

Recent years have brought about a significant change in the external conditions of agricultural production as well. This means a new situation which has developed on the world grain and fodder markets. Since the mid-1970's, supplies of fodder and grains have been decreasing significantly, while prices have been rising steadily. Many nations striving to improve their own food situations, particularly in the area of increased consumption of animal products, reach for grains. This is the type of fodder which exhibits the best conversion indexes and which allows development of animal production on the basis of industrialized technologies. Consequently, it is necessary to take into account not only the increase in price, but also the continuously shrinking import supply sources. Grain has become a new tool of political pressure. And this fact is the external reason for our need to change the direction of the development of the agricultural-production structure. Thus, the major problem facing us is to decrease decisively the degree of dependence of our animal production on imports of fodder and feed grains.

A rapid increase of prices for raw materials, fuels, and energy is another aspect of the change in external conditions. This process will continue, judging from the continuous price increases for oil and natural gas. The latter as we know is a raw material for production of nitrogen fertilizers. Thus it can be assumed quite safely that the coming years will bring a rise in agricultural-production costs as a consequence of changes in external conditions independent of the internal situation in agriculture. It is indispensable, then, to adjust to the new situation and develop new development processes.

The national economy as a whole, agriculture included, is entering a stage where further development will be dependent not on quantitative but on qualitative growth factors. Above all, the fulfillment of high agricultural tasks requires designating high effectiveness in utilization of production factors as the fundamental source of growth. Thus, we have to resign ourselves to the fact that we will not encounter an abundance of goods and that the means flow will not be cheap. This situation has manifold implications: the production process has to be organized in a manner that will enable each unit of material input--such as 1 kilogram of fertilizer, fodder, 1 unit of energy, 1 machine, 1 hour of a tractor's work, 1 unit of steel or cement--to multiply in a maximal way the final production output. This approach requires a "refashioning" of skills and qualifications. We must learn how to manage more efficiently, effectively, and at a lesser cost. We must aim at developing a new model of agricultural production growth. This model should be based on savings in raw materials, energy, and labor and at the same time it should secure the maximalization of food production per unit of arable land. In the management and control systems, greater emphasis should be placed on the shaping of the mechanisms controlling productivity.

Better utilization of land and decisive limiting of the tempo of converting arable land--particularly land characterized by the best natural conditions--to nonagricultural and nontimber area is a problem of a fundamental importance to the further agricultural production growth. This matter is not a responsibility of the agricultural sector alone. Too often we give in to the pressures from city planners and industrial enterprises which leads to an irretrievable limitation of agricultural-production space. Likewise we cannot allow a conversion of valuable arable land to recreational sites. We hope that the recently introduced rule--that each hectare of good soil taken for nonagricultural purposes must be followed by a gift of an equal size of recultivated land to agriculture--may become an important instrument for protection of arable land.

It is also necessary to give greater attention to the protection of the qualitative potential of arable land. Agriculture is still plagued by the degredation of land. This is mainly a result of agrotechnical errors, erroneous cultivation, lack of maintenance of irrigation and fertilizing equipment on the fields, failure to observe lime-treatment regulations for soils or their treatment with organic fertilizers. Too many areas are subjected to degradation processes as a result of intensified erosion. Unfortunately, there is a systematic increase of the area undergoing successive degradation due to pollutants in the air and water as well as overdried or watered down land caused by geotechnical work and the surface-mining industry.

Another problem is efficient and best possible adaptation of plant- and animal-production structures to diversified natural and soil conditions of the land, that is working out and introducing optimal rules for allocation of agricultural production in various parts of the country. An efficient regionalization of agricultural production should take into account the criteria of land absorbency by animal production. It can be assumed that some investment and organizational projects have not fulfilled this requirement. It is hardly effective when, for example, raising of feed cattle is being expanded in the regions of low concentration of pastures as sometimes happens in Niz Polski or Wyzyna Lubelska. The input of feed units for production of 1 kilogram of beef under such circumstances is 2-3 times higher than for production of pork or poultry. In other words, it is necessary to use 2-3 times greater land area to obtain the same result.

However, the most important for better utilization of land is efficient control of its transfer. Increased transfer of land creates a chance for significant improvement of the state of management of arable land in Poland because it creates better opportunities for further development and strengthening of state farms and making more dynamic transformations in the agrarian structure of individual farms. This creates better conditions for modernization and intensification of production as well as popularization of modern, socialist principles of its organization. The method of land management in the socialized sector and the formation of proper area structure of individual farms decide the current and long-term possibilities of the growth of agricultural production. The main problem is to make sure that the land changing its owner reaches the user who can guarantee its best utilization. This should be the basic criterion when the next user is chosen.

In regions with the greates concentration of small farms, the improvement of the agrarian structure requires energetic action directed at creating more large- and medium-size farms. This way the improvement of structure would become more common and could affect not only the few large farms, but would also be capable of forming medium farms where insufficiency of land is the growth barrier. The increased land flow to the PFZ projected for the period until 1985 creates a unique chance to actively control this process.

The phenomenon of the generation rotation, that is, the takeover of farms by young heirs, will be a positive premise for accelerating the process of improving the land structure of individual farms. Young farmers have more ambitious expectations in the area of land growth than the older generation. Studies indicate that every second potential heir intends to increase the area of the farm taken over by 5 hectares, which is related to the intention to specialize.

As can be seen, in our agrarian policy all matters related to land management have a priority status. That is why it is necessary to improve the legal, administrative, and economic instruments of land management in accordance with the resolution passed at the Sixth Central Committee Plenum and with the regulations set by the Political Bureau of the PZPR Central Committee in 1978.

The intensified transfer of land to the PFZ will also help the socialist sector of agricultural economy. In the decade passing now the increment of land used by the socialized sector will reach from 1.7 to 1.8 million hectares (growth by over 50 percent).

Of particular importance is the growing role of the agricultural producer cooperatives and groups of private farmers in the management of PFZ land. In the past 5-year period some 300 new agricultural producer cooperatives [RSP] have been formed which took over some 150,000 hectares of arable land with the help of the membership funds and PFZ resources. We expect this process to intensify in the 1980's, because an increasing number of farmers shows interest in the cooperative form of management in agriculture.

Considering present PFZ resources (some 700,000 hectares) and the projected availability of land in the years 1981-1985 it can be projected that the state will have at its disposal in total some 2-2.2 million hectares of land. Much of this reserve should be directed to improve the size of individual farms. In some regions (particularly with poor soils) the availability of land will be quite high, while the demand for the land will be negligible. This concerns some northern and eastern regions of our country where the creation of new units of socialized economy will offer the only chance to use the land for agricultural production. In other regions, there will be a need to put in order and increase the land complexes of the socialized farms in order to create more efficient modes of production.

An important aspect of land policy is abandoning the practice of units of socialized economy taking over small plots located far from economic centers. It was this practice that was responsible for generally unsatisfactory results in land use. It will be probably proper to offer these lands to farmer groups or agricultural circles which could use them on a temporary or permanent basis focusing on plant production alone.

Land policy, like a lens, concentrates the basic principles of agricultural policy, shaped and realized jointly with the United Peasant Party. Land policy includes the creation of conditions for a more dynamic growth of agricultural production and for creating premises for the socioeconomic transformations of the Polish village. These basic assumptions will be consistently followed in the policy of the distribution of the PFZ land in the 1980's as well.

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In Polish agriculture, the role and importance of the socialized sector continuously grows. It is in the system of socialized agricultural economy that the problems of the improvement of working conditions (high degree of the mechanization of the production processes) are solved the fastest and most efficiently; it also allows for the increase of productivity which secures uniform earning growth in comparison with the number of employed in other sectors of national economy and makes it possible to overcome a so-called "social barrier." This concerns the possibility to equalize the living standards of the agricultural society with the living conditions of the urban population (vacation, housing, social services, etc.).

The socialized agricultural economy provides our entire agriculture with modern means of agricultural production, such as, animal breeding material, new kinds of farming plants, and it works out models for a modern technology and production management.

Socialized farms perform important interventionist tasks such as management of failed individual farms, introduction of specific agricultural production, breeding animals rejected for meat production, starting interventionist breeding of piglets in order to prevent a drop in cattle breeding, etc. Socialized farms play an increasing role in maintaining the balance on the food market and in developing exports.

Although the units of socialized economy perform their task with great success, further effort is indispensable so that they will become an increasingly active participant in the universal dynamization of agricultural production in our entire agriculture. It seems that in the coming decade the units of the socialized sector should assume the function of a production integrator as well as offer to individual farming a complex aid system based on cooperative ties and services rendered which bring mutual benefits. This means the need for a broader "opening" of the socialized units to peasant agriculture. The experience of many socialized enterprises in the past years shows that this direction of development and function broadening is very successful and it serves the growth of agricultural production at home.

It is undoubtedly a difficult task; it will require additional technical improvement, especially since another parallel important task of the socialized sector is achieving rapid improvement of management effectiveness. We do not hide that in this area the situation is not under control yet. When we compare the land-productivity differentiation between sectors--measured not by the size of commodity production per area unit (here the socialized sector has no competitors) but by the size of final net production per hectare--it is clear that these indexes are even lower than those achieved on individual farms.

Still too high is the growth rate of costs and materials in the production increment in socialized sector units. It often happens that the use of the specific material production factors per unit of an agricultural product exceeds the norm. There are many reasons for this situation of course. There are objective factors which are related to the technical level of the work, which is continuously too low. The process of technical reconstruction of agriculture is permanent. Because of the organic character of production, full effects appear only after a period of a complex technical rearming of the land. When the land utilized by the socialized sector is considerably enlarged, the demand for material means rapidly increases. There are not enough means to equip fully the units already existing. This causes delays in the improvement rate of general farming efficiency. It is necessary to emphasize, however, that the insufficiently functioning efficiency mechanisms in the administration system of this sector are among the sources of this state of affairs. It is indispensable, then, to improve the economic and financial systems for the individual units of the socialized sector, for there is need for a parallel process of considerable growth of independence and of broadening of the decisionmaking area for the basic economic objects (enterprises).

It is also necessary to modify the systems of planning and administration, that is, abandon directive-command methods, strengthen the internal economic balance on the level of enterprises or smaller facilities and calculate unit costs of basic agricultural products.

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Of particular importance is the problem of an effective utilization of agricultural-production turnover means because of the relatively small dynamics of growth in their production and supply until 1985. It concerns mainly efficient utilization of mineral fertilizers and fodders. In the current 5-year period, we will achieve only a slight fertilization increment in comparison with 1975 which, along with the unfavorable atmospheric conditions, has slowed down the rate of growth of plant production. However, it is necessary to note a disturbing phenomenon of low and decreasing final effectiveness of fertilizing. It is present in our entire agriculture.

It seems that too low effectiveness of fertilizer utilization has its source in agrotechnical shortcomings present in many farming establishments. That is why it is necessary to pay more attention to efficient farming, to farming deadlines, to betterment of soils and to increasing their absorptive capabilities. Mineral fertilizing ought to be based on the real fertilizing needs of the plants. This will allow better utilization of fertilizers offered to agriculture by the chemical industry.

The key issue, however, is the efficiency of the fodder economy. The continuously low effectiveness of fodder utilization is caused by their faulty structure and low quality as well as feeding errors and deficiencies in animal hygiene and sanitary conditions. Also, sometimes the structure of fodder resources produced on farms is adapted to the animal-production structure which brings about an increased demand for fodder grains from the state warehouses.

The main link to focus on should be the reduction of losses caused during harvest, conservation, storage, and fodder grazing. Losses are still high and reach the level of 30 percent of the total nutrition value (in energy and proteins). That is why it is necessary to put emphasis on progressive and energy-saving methods of fodder conservation, in particular on production of silage fodder, silage grass, and drying up hay with the use of fans. It is necessary to develop more extensively potato silage, improved green and corn crushing for ensilage, etc. The basic condition for improvement in this area is proper technical modernization of this sector of agricultural production, that is, equipping it with the necessary equipment and machinery, constructing warehouses and silos, and increasing supplies of chemical conserving agents.

A more difficult problem is limiting the growth rate of grain consumption in animal production, the result of modern breeding technologies and present in all sectors. Disturbing, however, are high indexes of utilization of concentrated feeds for production per comparable kilogram of animal production. This shows the ever-present low effectiveness in utilization of grain fodders. The differences between various sectors are very considerable in this area. One can have similar reservations in respect to the total efficiency of all fodder resources, that is volume and grain fodders.

The potentials for improving efficiency in fodder utilization are very big. Their use depends on the whole gamut of activities which have to be undertaken and consistently pursued. They must have a long-term character and cover a broad spectrum of administrative, production, and introductory and popularizing activities.

One of the main conditions for improvement of the efficiency of utilization of grain fodders is the improvement of concentrated fodders. In the last few years, we have not noted any progress in this respect. The proper fodder quality means not only balanced food needs of animals, that is, complete adherence to the fodder production recipes, but also making sure that the concentrated mixtures contain components of proper biological activity, free of harmful admixtures and substances; it means also proper homogenization of admixtures and protection of fodders against rancidity and oxidization. Finally, it means also a production of a wide assortment of fodder muxtures and of protein-vitamin-mineral concentrates adapted to various feeding technologies and types of fodder. Insufficient quality of concentrated feeds has its source also in limited supplies, e.g., of chemical additives to fodders or of mineral compounds (vitamins, aminoacids, fodder phosphates, microelements, anti-oxidants, substance to prevent coccidiosis, etc.).

Bad fodder quality is also caused by poor organization of units producing and distributing fodder. The present organization of grain-fodder economy administration causes dispersion of economic decisions, unequal and insufficient growth of the material production base as compared to needs, deepening of difficulties in collecting and administering raw materials as well as insufficient efficiency in means utilization, including hard currency. This does not foster rational development of fodder economy.

Reducing the grain-consumption rate in animal production requires intensification of efforts to increase the share of nongrain fodders (potatoes, Poly-Past beets) in the feeding of the monogastric animals as well as basing the feeding of cattle and sheep predominantly on farming fodders.

It is understandable that the increase in the efficiency of fodder utilization requires a simultaneous improvement process in animal productivity both through improving the genetic potential, introducing hybridization of cattle on a large scale, and above all through improving propagation and breeding conditions as well as through reducing mortality and losses among young animals, improving animal hygiene, health and sanitary conditions, and increasing the level of systemic breeding of young cattle (reducing the calf-slaughter volume).

The potentials for the improvement of the efficiency of fodder economy and for the reduction of the level of the grain consumption of animal production are extensive. They will require new investments in the areas of increasing storage capabilities, production power of producers of mixers and concentrates, and construction of facilities for mineral-mixture production, etc. The achieving improved efficiency in fodder utilization also demands basic improvement in providing agriculture with means of production, particularly, indispensable machines and equipment as well as products of the chemical industry.

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Of great importance for the fulfillment of tasks in agriculture will be the improvement of investment processes involving technical reconstruction and modernization. It is common knowledge that agriculture's investment needs are very big. Considering the limited resources available, it is necessary to subordinate the policy of investment allocations to the maximization of food efficiency per area unit. That is why the most important are investment expenditures for continuous improvement of the productivity of soils (agricultural improvement, soil fertilization and protection, recultivation of soils) and for the complex of fodder economy which will have a decisive effect on the acceleration of improvement in efficiency of grain and fodder utilization. Priority should be also given to investment expenditures on the improvement of living conditions, that is, housing and social programs as well as technical improvements in labor which are responsible for its efficiency and adherence to technological processes.

The practical realization of these investment priorities is possible on the condition that greater material means are allocated. Similar priorities must be taken into consideration when creating production capabilities for those branches of industry which will manufacture production means for agriculture.

Heavy industry and the agricultural machinery industry must be the main partners in this enterprise. The directions of agricultural investments listed above require significant growth in tractor-machine and equipment supplies and the complementation of the machinery and equipment sets must be secured. This is a fundamental condition for success.

The chemical industry is faced with big tasks as well. Particularly bothersome are the inadequate production capabilities of this industry in the areas of production of mineral fertilizers (especially nitric fertilizers), chemicals for plant protection, chemical admixtures for fodder (aminoacids, vitamins, conserving agents, mineral compounds, mainly fodder phosphates), not mentioning foil, drainage pipes made of plastic, etc.

The choice of priorities presented here in a general manner shows the need for a complex approach to the investment policy in agriculture as a condition for the improvement of farming efficiency.

It seems that one of the reasons for the relatively low efficiency of durable means and of growth of expenditures for an increment in agricultural production is also the location policy which is not always correct. The investment problem should be considered an integral part of the arranged agricultural production space, understood as a concrete microcomplex of food economy. Without strict adherence to the principles of complex technical improvement of land, no improvement in the utilization effectiveness of durable means will be achieved.

The subject range of investments and their scale basically depend on the investor's choice of specific technologies of agricultural production. Until now other sets of conditions have been taken into consideration when making investment decisions. For example, conditions of energy supply differed, and fuel prices were on a different level as well. The present situation is significantly changed and the observed tendencies do not exhibit a temporary nature.

It is understandable that this factor must be taken into consideration in investment policy, that is, in the choice of manufacturing technologies. That is why investment decisions dependent on considerable energy use (e.g., drying houses for greens, extruders, green houses in the northern regions, etc.) must be taken with a lot of thought.

Another aspect of this problem is the issue of environment protection. This concerns mostly the concentration scale in industrial farms. Contrary to the views formulated in Poland, the construction of industrial animal farms has been allowed only moderate growth. In the socialized sector, there are only some 80 hog farms, 90 milk cow farms and 80 farms for young cattle destined for slaughter, and of these only a few can count as large cattle-concentration units. Experience shows, however, that with the present technical level it will serve no purpose to increase the milk cattle at one farm beyond 600, or to go beyond 3,500 steers and 12,000 hogs per year.

When analyzing unit costs of investments realized by units of the socialized sector on the basis of a constant price base it is disturbing to see their rapid growth. It seems that this cost is not always justified. Apart from commonly observed reasons (price growth in construction materials, irregular supplies, equipment and transport deficiencies in agricultural construction, lengthening of construction cycles, inefficient management of materials and equipment) it seems toat the unit-cost growth is also caused by the faulty functioning of the system of investment realization and of the economic-financial system. In general, all participants in the investment process--project author, investor, and executor--are too little interested in lowering the costs.

That is why it is necessary to aim at gradual departure from the principles of canceling investment credits and at introducing instead the principle of required credit payments with interest. The economic-financial systems for contracting units and planning bureaus should be modified from the same angle so as to pay all participants in the investment process to realize investments at the lowest cost.

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The stage of agricultural growth that we have just entered is characterized by putting into effect qualitatively new reserves of further production growth. The process of further intensification will be realized through increased labor efficiency as a result of technical improvement, changes in production management itself on agricultural farms as well as their switching to specialized production. This leads to increased production scale and concentration and to new types of relationships between farms, relationships based on production cooperation. Concentration, specialization, and cooperation give today the new character to production organization in individual economic objects. The system of relationships between units of agricultural production and service units for villages and agriculture shows a significant change as well. It can be said that the factor of modern production organization becomes an important progressive force.

Thus, modern organization of agricultural production must be based on a deeper social division of labor. To an increasing degree, the organization of the production process in every farm is dependent on the efficiency of functioning of the cooperative relationships, on supplies of external means of agricultural production, and on direct introduction of various economic objects active in agriculture into individual links of the technological cycle, put into effect in a farm economy. This process should be considered an objective economic regularity. The economic and social effects of turning to specialized and large-scale production speak for themselves. According to the Institute of Agricultural Economics study, individual farms specializing in animal production have unit costs over 30 percent lower than average in the entire peasant economy, three times lower live labor expenditures per production unit, and nearly three times higher indexes of commodity production. The specialization of farms solves a number of difficult problems in the village: it increases the size of earnings per family or per working day by so much that it becomes competitive with the earnings in nonagricultural sectors; it changes the character of labor in the process of transferring to "industrialized" methods; and finally, it creates a new chance for intensified production.

As we know, this direction of growth is particularly favored. In Polish agriculture there are already some 120,000 farms which have been granted specialized farm certificates. It is necessary to intensify these efforts even more in the coming years. There are, however, several problems here which require further solution.

It seems that it is necessary to consider the character of the state participation in the costs of technical modernization of agriculture especially from the angle of effective utilization of investment means. Until now acceptable solutions contained different degrees of cancellations of credits obtained by specialized farms for construction purposes. It seems that the state participation in the costs of technical modernization should also in a greater degree include those investment directions which serve the improvement of conditions in agricultural production of entire regions (villages), that is, in such directions as soil improvements, water economy, water supplies for agriculture, expansion of technical infrastructure, broadly understood services for villages and agriculture, social infrastructure, etc.

The production service units for villages and agriculture have a special role to fulfill in popularization of modern organization of agricultural production. That is why special efforts should be made to strengthen them and increase their numbers. This direction of our activity must have a clear priority. For it mainly concerns the shaping of a complex service potential in the framework of the structure of agricultural circle cooperatives (agrotechnical, chemical, transportation, repair, equipment conservation, soil recultivation, harvesting, fodder conservation and mixing, construction-assembly services, etc.).

In addition to production services, another important link is represented by the improvement of the system of commodity turnover and agricultural-products processing services. It is necessary to improve the activities of agricultural cooperative organizations affiliated with the Central Union of Agricultural Cooperatives (CZRS) and within available means to expand warehouse facilities, procurement and agricultural products receiving points, and to increase the processing capabilities of agricultural food-processing units. In the latter case, an important role can be played by the agricultural collective farms. So far, the results of the developed production cooperation between the Agricultural Labor Cooperatives (RSP) and small-commodity individual farms both in the framework of the so-called specialized cooperatives and in cooperation related to fruit-vegetable processing based on their own agricultural raw-materials-processing bases can be given a satisfactory grade. This is an unusually efficient way to intensify agricultural production of small farms which do not have the means to switch to specialized and highly-concentrated production.

State agricultural enterprises have had similar experience. Entering into cooperative unions, organization of production on an expenditure basis, development of paid production services are for the State Agricultural Farms (PGR) an important means to affect individual farming, because they are an effective form of popularization and introduction of scientific and technical as well as administrative progress.

This integrated system of lateral and vertical relationships creates a new network of social division of labor, and it gives the means of production a semblance of socialist character. This is the essence of the great importance of deepening the integration processes in agriculture. They equally serve the improvement of the production level and the transformation of socioeconomic conditions in the country.

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The evolution of production technology and of production conditions in agriculture as well as the integration and organization processes taking place now indicate that the present methods of administration and control instruments in agriculture are less and less adequate in the changing conditions. First it is necessary to improve those instruments which have a positive effect on farming efficiency. There is no doubt that the improvement of farming efficiency depends most of all on the management level of the basic economic units. Here are the main reserves; this is he level on which the struggle for better effects and more efficient utilization of production factors takes place. If this thesis is correct then it is necessary to expand the independence of economic units as well as to increase their authority in making economic decisions.

The improvement of planning and control methods should be undertaken gradually through partial and step-by-step solutions. It is important, however, to keep in mind the principles and final goals. There are many problems requiring solutions and which cannot be uniquivocally resolved as yet. Among them there are:

-- the principles of modification of planning and of programming the growth of food economy;

-- criteria and solutions for the modified economic-financial systems for individual agricultural sectors;

-- putting in order organizational structures of economic management, particularly defining jurisdictions and powers of the intermediate management units (enterprises, associations, central administrations);

-- defining jurisdictions and powers of the local administrative organs in planning and programming of agricultural activities and in their coordinating functions.

Agriculture, unlike any other branch of the national economy, develops in integrated space structures. These structures clearly differ in various regions. Proper principles of administration and control must take this differences into account along with specific situations and possibilities. This is the reason for the need to increase the powers of the local administrative and economic organs in management of agriculture. This does not mean the weakening of the "center" in controlling the growth of agriculture and food economy. The role of the "center" must be clearly strengthened. This should be achieved by focusing attention on the problems of perfecting the control systems (economic-financial mechanisms), establishing proper proportions for the development of areas and branches included in the so-called "food economy complex," creating the new necessary production capabilities, controlling the policy of investment allocations, differential forecasting and planning of the size and structure of the agricultural production, and improving organizational and legal norms as well as a system of efficient control.

This incomplete review of issues demonstrates that if we want to make the agricultural production more dynamic it will be necessary to extensively modify the administrative system. This problem is also emphasized in the guidelines for the Eighth PZPR Congress.

Actually, however, it is man, with his qualification and skills, his initiative and involvement, that is the most important link in the battle for food, for progress and growth of Polish agriculture. The production results will depend more and more on the quality of labor in agriculture and in its production and economic hinterland. Thus, it is necessary to focus on the capital of professional skills, and on agricultural knowledge and technical-administrative progress. For this factor will most of all decide the effectiveness of administration.

It was common to narrow the problem of qualifications to those directly involved in the production processes, that is, to farmers and agricultural laborers. It is still a basic link. Today, however, we are not satisfied by farmers acquiring formal rights to administer farms. We are facing the process of technical reconstruction. Soon agriculture will be serviced by a new tractor-machine park, and the changes in technology and production organization come about fast as well. The demand for qualifications will rapidly increase. It is necessary to teach the direct producers how to manage efficiently, that is, how to utilize production reserves wisely.

The same, in fact, concerns all services on various levels of economic and administrative management, all those employed in units servicing the village and in the processing industry, all involved in the decisionmaking process. There is a need for a deep analysis of the new reality; there is a need for knowledge which will allow to satisfy current needs.

The tasks facing us are huge. We cannot forget that considerable numbers of those employed in agriculture do not have the proper professional background. The generation rotation creates a big chance for improving the qualification level of farm managers. We must intensify our efforts in this respect. It is necessary to introduce active forms of popularization of agricultural knowledge. We must strengthen the training cadre both in number and organizational level. For it is they who talk to the farmer every day. Their knowledge and skills will influence the speed of the transformation of the agricultural progress into materialized production result. Thus, the organizational status of the commune agricultural service ought to be improved from this point of view. It should be relieved from formal administrative and reporting activities and instead it should be better organized and provided with better working conditions.

Tasks which are bigger and more difficult than before should be placed before the research sector. Scientists have made a positive contribution to the development of agriculture. One can read a long list of achievements in cattle breeding, or of technological and technical solutions. The present demands greater intensification of research activities. It is necessary to focus work on major problems of agricultural growth.

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The discussed links and directions of activities aiming at improvement of efficient management in agricultural production constitute the basic platform focused on by the Ministry of Agriculture. Therefore, these are not just claims and proposals. The 1980 Guidelines for the National Plan of Socialist Economy already envisage a number of changes in the structure of plant and animal production. This is exemplified by the emphasis put on increasing area sown in grains and corn (for grain crops) from 8.2 to 8.3 million hectares, increasing the share of high-crop pasture plants (including corn for feed), directing animal production to breeding milk and feeder cattle as well as sheep.

Significant changes are being introduced in the policy of investment allocations by directing them to programs of technical modernization of feed economy, both in units of the socialized sector and in individual farming.

Several other solutions have been introduced into fodder economy aiming at better utilization of the fodder resources. For example, new motivation mechanisms have been introduced aiming at frugal use of concentrated feed (system of bonuses for saved feed in the socialized sector units; "equivalent" pay to individual farmers for unused concentrated feed). Stricter norms for concentrated feed use have been introduced in the socialized sector. The announced price changes (for milk and sugar beets) constitute one of the mechanisms stimulating productive activity in agriculture. Several changes have already been introduced into control of the animal-production structure, e.g., the number of cattle is no longer the basis for evaluating the tasks; extraordinary incentives have been introduced for breeders of heifers and calfs; economic barriers limiting interest in breeding red and nonbreed cattle have been abolished.

Intensive work on modification of economic-financial and administrative systems of control of agricultural growth has already started.

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The issues discussed above do not exhaust the discussion of basic conditions for agricultural growth in the 1980's. This would be an impossible task. The idea was to present a method of approaching the most important task placed before us by the social and economic needs of our country, namely, choosing an optimal group of means for the realization of the huge agricultural tasks. The focus on the agricultural area of activity was chosen purposefully. It might be a mistake, however, to contend that the further socioeconomic growth in agriculture depends solely on the people active in this sphere. The directions described above must be actively supported by the effort of the entire national economy. That is how this problem was solved by the historical resolution of the 15th PZPR Central Committee plenum, and that is how this issue was focused on in the guidelines for the Eighth PZPR Congress.

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INTENSIFICATION OF GRAIN, FEED PRODUCTION STRESSED

Warsaw TRYBUNA LUDU in Polish 11 Apr 80 p 5

[Article by Marcin Makowiecki]

[Text] During the past decade, a disproportion between the rate of the growth in livestock production and the increase in the feed resources has been gradually deepening. In 1971-1979, vegetable production increased by 8.4 percent and the animal production by 39.8 percent. The development of the livestock production has to a great extent become possible thanks to the increase in the imports of grain and feeds from 2.9 million tons in 1970 to 8.5 million tons in the last 2 years. At present about 40 percent of the concentrate requirements for agriculture is supplied from imports.

The growth of the livestock production--the production of meat, milk, eggs, wool, and various other products--has caused a year after year increase in the consumption of feeds. From a balance-sheet drawn by the Ministry of Agriculture it follows that it has increased from 50.6 billion feed units and 4.35 million tons of protein 10 years ago to 61.6 billion units and 5.7 million tons of protein in the past year. The increase in the amount of feeds, despite unfavorable conditions for vegetable production, was a result of the increase in the grain crop yield, improvement in the farming of meadows and pastures, and a systematic use of better yielding species and varieties of plants. At the same time the technical equipment of agriculture was improved and facilitated by more punctual execution of farming operations and harvesting of agricultural crops. Imports of grain and raw feed has ensured a better supply of concentrates but it has also considerably burdened the Polish foreign trade balance.

In the future to achievement of long-range plans, a significant growth of the animal production will continue to require a considerable increase in feed resources. It stands to reason that a further development of the livestock production cannot be based on the increase in imports. On the contrary, it will become necessary to reduce imports to achieve a greater degree of self-sufficiency.

This sets us very important tasks in the field of vegetable production, since the improvement of the grain-feed balance will require an increase in the production of all kinds of concentrates based on grain, hay and green forage, silage and of fodder root crops. It will be necessary to achieve higher yields by decreasing cultivated land area (in the past decade 553,000 ha. were lost to agriculture). Therefore the only remedy is to step up the production.

The improvement of the grain-feed balance is the most important production problem of our agriculture and will continue to be during the next years. The production of feeds, together with the feed-related crops, occupies three-fourths of the entire cropland area and constitutes two-thirds of the value of vegetable production. The make-up of material and monetary outlays for animal production the feeds amounts to 70-80 percent. The overall feed requirements are made up of 32 percent grain, 19 percent meadow and pasture crops, 12 percent potatoes, 9 percent root crops, 8 percent corn, and 30 percent aftercrops and other feeds.

These data demonstrate the significance of feeds in the make-up of agricultural production. They also indicate that the improvement of the feed balance can be achieved only as a result of comprehensive action undertaken in many secotrs of the agriculture itself as well as in the industries that cooperate with them.

A program for the production and consumption of grain and feeds in 1981-1985 has been recently considered and adopted by the Politburo. It encompasses all the links of this extensive production aggregate and indicates the main directions of actions aimed at increasing the feed resources and their better utilization.

Grain production development will continue to be the key problem. To achieve the planned level of crops will require not only an increase in yield per hectare (up to 30-32 q/ha) but also an increase in the proportion of grain in crop composition of crops (up to 59.5 percent).

Grassland productivity has been hitherto low, but compared to its potential, holds considerable reserves. The amount of hay gathered from meadows in 1976-1978 averaged 59 quintals per hectare and that of forage from the pastures 202 quintals per hectare. The main reasons of this insufficient productivity were the numerous shortcomings in agricultural techniques, insufficient fertilization, lack of progress in grassland improvement, and insufficient equipment and machines for haymaking. A better management of meadows and pastures would permit an increase of the area of the thrice-mown meadows from 900,000 ha to 1,300,000 ha, and a corresponding increase of hay crops to 68 quintals per hectare and that of green forage to 240 quintals per hectare.

The increase in productivity of all forage plants would have a great influence on improving feed balance. A great role will also be played by the increase (to about one million hectares in 1985) of the area sown to grain crops, which because of high productivity of grains makes it possible to obtain high-value silage and large grain crops.

The most important are measures which can enhance the harvests and lastingly improve fertility of soils. The implementation of a program for the development of feed production depends on ensuring the use of fertilizer, better use of plant protection agents, and improving supplies of good machinery for gathering and curing green forage.

The range of the indispensable land improvement work to be performed is still very great. This includes 48 percent of arable land and 44 percent of meadows and agricultural land.

The second set of measures making possible a more effective utilization of feed resources includes storage, processing and feeding the livestock. Of help will be here the expansion of feed industry by building new processing plants, development of the production of industrial feeds in socialized farms and production of feed mixtures from local feed resources in communes and voivodships. It is imperative to develop grinding and mixing services in GS [guina cooperatives] and in SKR [Agricultural Circle Cooperatives].

All this will permit us to increase the overall production of concentrate mixtures and at the same time make it possible to decrease the turnover of grain on a national scale and a better local balancing of requirements. The possibilities of implementation depend on the increased supply of agriculture with high-protein concentrates. Their requirement is estimated at 2.7 million tons in 1985, compared to 1.3 million tons in the current year.

The losses of in feeds gathered from the fields are caused by inadequate agricultural equipment with permanent silos. It is estimated that the losses in vehicular silos amount to 15-25 percent, and in piles and clamps to 40-50 percent, not to speak of the deteriorating quality. The construction of 2.5 million m^3 of silos annually will permit us to considerably increase the share of silage stored in permanent silos.

The effects of livestock feeding would be considerably greater if agriculture were better supplied with mineral feed ingredients necessary for livestock breeding. A half of these requirements are met by deliveries of industrial mixtures, and the remainder should be supplied in the form of the well-known mineral supplements: salt-lick, fodder lime, etc. Unfortunately, not even the most urgent needs are being supplied. This points to a necessity of the construction of a factory of mineral ingredients.

The examples quoted clearly demonstrate a wide scope of the feed economy. It consists of a combined work of many sectors of the national economy whose common goal should be a mutual adjustment of the structure of the vegetable production and requirements of the livestock production aimed at bringing the supply of feeds into a greater than hitherto balance with the demand.

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CSO: 2600

POLAND

INCREASING SCIENCE AND TECHNOLOGY EXPORTS TO THIRD WORLD DISCUSSED

Warsaw HANDEL ZAGRANICZNY in Polish No 12 1979 pp 21-23

[Article by Tadeusz Checinski: "Conditions of Activation of Export of Scientific-Technical Achievements and Services to Third World Countries"]

[Text] Export of science and technology, often called invisible trade, which encompasses primarily licenses to utilize technology protected by patents or of the know-how type, has today become a most important item in international trade.

It brings exporting countries various advantages, one of the most important of which is unquestionably substantial foreign exchange revenues. The value of export by some highly industrialized countries, possessing an elaborate research and development base (important particularly with know-how licenses) amounts to hundreds of millions of dollars annually. According to figures in the weekly journal THE ECONOMIST,* the United States exported 4.4 billion dollars of technology in 1976, France exported 991 million dollars worth in 1974, Great Britain -- 610 million dollars in 1975, the FRG -- 304 million dollars in 1976, Japan -- 191 million dollars in 1975, and Sweden -- 175 million dollars in 1976.

The rapid growth of transfer of technology is indicated by the value of world trade in know-how, which totaled 2.7 billion dollars in 1965, and more than 11 billion dollars in 1975, that is, only 10 years later.

It is therefore not surprising that the industrialized nations, especially those which have difficulties balancing their trade, have recently attached so much importance to development of this type of export. On the other hand, in a period of scientific and technological revolution and the development of scientific research bases in many countries, there is occurring increasing competition in the world market in the area of sale of scientific and technical advances, meeting the requirements for practical application in industry or other sectors of the economy. It is not easy today to sell technology licenses. Every request draws numerous sales pitches by companies in many countries. As the director of the French Agency Handling Practical Utilization and Sale of Research Results

(Agence Nationale de Valorisation de la Recherche -- ANVAR) stated during a visit to Poland, he is satisfied if one or two out of every one hundred proposals or bids arouses the prospective client's interest and a purchase occurs. Boosting sales is quite different from goods export; it requires considerable financial outlays and efforts on the part of many specialists.

Developing countries should be considered the greatest potential purchasers of scientific and technical advances and services. It is true that at the present time they have only a 10 percent share in world license trade (exclusively on the import side), but their share is rapidly growing. We should emphasize that they spend on import of technology a considerably greater percentage of their foreign exchange revenues than the industrialized nations.

We should note that among the developing countries, India and South Korea have made the greatest advances in the area of establishing their own scientific research base. Import of technology to those countries requires special permission from government authorities, which first determine whether such import can be replaced by domestic research achievements. In general, however, as we have already stated, a steadily growing inflow of technology from the developed nations is essential for the Third World countries which are advancing by means of industrialization.

The declaration and implementation plan ratified in March 1975 at the Second General Conference of UNIDO in Lima, Peru states that an effort should be made to ensure that by the year 2000 25 percent of the manufactured goods produced worldwide are produced in the Third World countries (presently the figure is approximately 7 percent). This resolution was adopted at the Seventh Special Session of the United Nations General Assembly. This ambitious goal, a goal which will be very difficult to achieve, attests to the importance of the role of technology transfer from science and research intensive countries to countries which do not have a domestic scientific research and development base or where such a base is at an embryonic stage.

Thus we can state that there exists enormous potential for export of science and technology to these areas. There has also recently been an improvement in possibilities and conditions of financing capital investment in this area, including the import of technology licenses, personnel training, etc. A number of UN organizations and agencies deal exclusively or partially with these matters, the goal of which is assistance in industrializing the Third World nations. In particular, these include the following: United Nations Development Program (UNDP); United Nations Conference on Trade and Development (UNCTAD); United Nations Industrial Development Organization (UNIDO). Through the efforts of the United Nations Organization, each year funds are allocated for financial assistance to industrializing countries. Substantial credits for this purpose are obtained through banks, the most important of which is the

International Bank for Reconstruction and Development (known by the more familiar name World Bank). Also increasingly more frequent occurrences are the forming -- for the purpose of large-scale industrial investments in Third World countries -- of consortia of suppliers (from different countries) of technology and technical services and equipment essential for adoption of the imported technology. Joint ventures of this kind make it easier to obtain bank credits, which are also utilized (to a suitable extent) by suppliers of "pure" technology.

When efforts to secure the credits required for obtaining the earliest possible payment for delivered technology are unsuccessful, also considered in financing arrangements is payment in the form of delivery by the licensee of a portion of the licensed production (payment in kind). Of course this is a less advantageous form, which always carries the element of risk and deprives the licenser of advantages connected with prompt receipt of the amount due. I do not agree, however, with those who are of the opinion that in view of the foreign exchange difficulties we are experiencing, such a condition makes an entire transaction unprofitable and in any case unattractive. This is true, but only in the case of export of a complete industrial installation, equipment, machinery, etc, carrying a foreign exchange outlay, or in the case of export of goods produced from raw materials or semifinished goods which could be sold separately for foreign exchange. On the other hand, if it is a matter of scientific and technical advances, foreign exchange earned from their export constitutes merely an additional advantage, since all costs (research and development work, etc) have in practice already been paid for from the general resources of society. One must also bear in mind that developing countries which are crude oil exporters have considerable funds at their disposal. Other Third World countries as well, which are exporters of raw materials, by enjoying price increases will possess increasing funds for these purposes.

The frequently encountered view that developing countries as a rule demand the most modern and sophisticated scientific and technological advances, which our economy cannot always offer, is in my opinion incorrect. Generally speaking these countries do in fact demand such technologies, but in practice they are frequently "too difficult" to incorporate (in particular due to a lack of qualified personnel); as a result clients accept technologies which are moderately state-of-the-art.

When offering technology to Third World countries, one must assume at the outset that the technology proper must be supplemented by various scientific and technical services provided by the supplier. This is connected primarily with the low level of occupational training of local personnel, both skilled workers and management personnel. One of the basic conditions of purchase of technology by developing countries is a contractual obligation for the licenser to train personnel of the licensee locally, at the plant where the given technology will be utilized, or at a domestic plant where it is already in use. Prior to training local cadres, the license exporter (supplier) must frequently "loan out" its own specialists for a certain period of time. This is not always convenient for domestic plants and therefore usually assistance of this type is highly paid. Separate from provision of complete process documentation (descriptions, drawings, diagrams, etc), the licensee requests assistance in specifying essential equipment, etc. If the exporter cannot supply it, he must offer what in his opinion are the best sources of supply and even, at the client's request, give assistance in selection and purchase, as well as in "startup" of the entire licensed project.

In licensing contracts the licenser for the most part pledges to furnish the licensee with information on all technology-improving results of research conducted by the licenser's research and development facilities. In relations between industrialized countries this obligation is of a reciprocal nature. In cases of export to Third World nations, as a rule the flow of such information proceeds in the direction from the technology licenser to the licensee.

Following selection of technologies which are in conformity with the requirements and specific conditions of the importing country, and after securing capability in the domestic scientific-technical base and in industry to undertake supplementary contractual obligations, the exporting enterprise may proceed with activation. We shall discuss here only certain of its various forms and directions, those which are the most effective, as indicated by past practical experience.

The first of these is approach with information, followed by an initial (general) and detailed technical-trade proposal to individual industrial enterprises or possessors of capital who are looking for the most profitable investment for their capital. Toward this objective one should advertise both in European trade journals, which reach many countries (including developing countries), and in the local newspapers and economics and technical periodicals. An example would be a notice or advertisement stating that with relatively little capital outlays, on the basis of an obtained process and technical-training assistance, it would be possible to start up manufacture of several universally-used pharmaceuticals or even cosmetic products involving a fairly uncomplicated technology which -- as is well known -- bring an investor the highest return on invested capital. Exhibits and trade fairs abroad can also be utilized, although to a limited extent. The arsenal of means of advertising and publicity is relatively large.

Another form of action is utilization of trade contacts maintained by sector foreign trade enterprises. While importing raw materials or semifinished goods from Third World nations, one can convince the suppliers in those countries of the advantages deriving from partial processing of these materials locally, based on technology furnished by us, and offering essential assistance in starting up such a production operation. In turn when exporting goods to those countries, if it would not be detrimental to our present interests, one should persuade the importing enterprise to set up like production, also on the basis of technology and technical assistance purchased from us.

Major industrial investments in Third World countries with the commitment of state capital to a greater or lesser degree offer a favorable area for stepping up export of technology. Export of so-called complete installations is accomplished chiefly by participation in public auctions by enterprises offering services. Thus we are dealing with "indirect" export of scientific and technical ideas, since complete installations are bearers of technology. Sale of "pure" technology occurs primarily when a given country feels capable of carrying out a capital project on its own or with the involvement of foreign contractors handling certain parts of a production investment project based on "our" technology and accompanying contract services. In this case it is essential to obtain in advance information on the planned directions and areas of industrial development in a Third World country and -- in greater detail -- on the goods which are to be produced. Consequently it is necessary to know the economic development plans of individual countries. Also very helpful is cooperation and active involvement in the activities of general and specialized UN organizations as well as establishment of contacts with international organizations of Africa, Latin America, etc. One important form of activation is participation in specialist seminars and other types of scientific conferences and meetings.

The governments of Third World countries as well as large industrial plants employ on a full-time or part-time basis top-grade research experts as scientific or technical advisers. Reporting information obtained during scientific conferences on scientific research achievements which can find practical application in the industry with which they are collaborating and where they have an important voice in matters of selection of new technologies, among other things, they can exercise a decisive influence on the purchase of a given license. We should emphasize that the authors of inventions and scientists who have developed advances of a know-how nature and have done research, development and frequently industrial application work should participate in conferences and meetings of this kind. If research establishments do not consider it useful to delegate their own personnel, they should be sent by interested foreign trade enterprises.

We have already mentioned UN specialized organizations, which promote the rapid industrialization of Third World countries. Poland participates in their activities, but it would seem that this participation could be considerably better utilized for continuously informing Polish industry, research establishments and foreign trade enterprises on current technology transfer opportunities and on the needs of specific developing countries anticipated in the near future.

One example of scientific and technical cooperation with UNIDO which is beneficial for the export of scientific and technical advances and services is CIECH, and in particular the office which deals exclusively with export and import of licenses for the chemical industry. This enterprise was included on a special roster of technology and services suppliers maintained by one of the divisions of UNIDO. In connection with this it receives UNIDO publications containing information on opportunities, prospects of and conditions for export of technology and scientific-technical services to developing countries, and also can place information on our current export capabilities free of charge in a bulletin published on a regular basis by UNIDO. The CHIECH-TECHNOCHEM Office has established in this manner a number of interesting contacts and has expanded its activities.

There also exists the possibility of holding in Poland, under UNIDO auspices, various international symposiums. Participants include representatives of many countries, in particular developing countries, representatives who later exert a large if not determining influence on purchase of specific licenses by the countries they represent. This opportunity should be utilized by sector foreign trade enterprises in choosing and proposing to UNIDO subject matter and area of production in which we have made important advances and possess the capability to offer to other countries patent licenses, know-how licenses and various services connected with starting up in Third World countries industrial plants based on purchased technologies. As an example we might mention such subjects as: sugar industry (modern plants and processes), sulfur production and processing (new applications), etc.

One could discuss at the government level the expediency of organizing jointly with UNIDO an institution (center) for increasing cooperation with the Third World countries in the areas of science, technology and industry for initiating, expanding and accelerating the flow of technology to the developing countries and performance of services (in the area of training, sending experts to these countries, etc). Not wishing to discuss this subject more extensively, I shall just state that centers of this kind have already been established in some countries (in Romania, for example) and are currently being established in other countries (FRG, United States). Independently of cooperative action with UN organizations, our representations abroad could utilize the various associations of African, Asian, Central and South American nations, etc. For example, an association of African organizations for industrial technologies (African Industrial Technology Organizations -- AAITO) was established in Lagos at UNIDO initiative and in cooperation with the Nigerian Government. It is to perform the function of "technical arm" of the Organization of African Unity (OUA) in the area of industrial and technology matters connected with economic development of the African countries. The functions of general secretariat of AAITO are to be temporarily performed by the Scientific, Technical and Research Commission (STRC) in Lagos. It would seem that close contact and cooperation with this association could play the role of catalyst for development of our export of scientific and technical ideas in the broad meaning of the term.

We have already stated that export activation of scientific and technical advances and services is difficult, highly labor-intensive, and therefore costly. Working up even initial proposals, not to mention detailed technical-economic bids, requires a considerable investment of labor by the authors of technical advances, by technicians, economists, translators, etc. In order to reduce to a warranted minimum the scope and magnitude of workups of this kind, the foreign trade enterprises which establish initial contacts with potential foreign customers should send them only preliminary (general) informational materials, for the most part prepared by the suppliers. Further submission of detailed materials and, ultimately, concrete proposals should be dependent on an obtained assessment on the potential partner, his reputation, financial ability and assurances on intention to obtain a license. In countries where import of licenses is closely controlled by the state, one should obtain an evaluation on whether the given firm has a good chance of obtaining the required purchase approval.

Participation by an interested foreign trade enterprise in consortia established on an ad hoc basis for carrying out a specified capital investment project in its entirety can prove very helpful in transferring technology to developing nations. Several foreign enterprises from different countries can take part in such consortia. This is "indirect" export, to be true, but it is linked, and it is possible, only together with simultaneous deliveries of equipment which the technology exporter itself cannot offer. If a partner in a developing country seeks bids (either by competitive bidding or direct inquiries) for delivery of a complete installation, and the given foreign trade enterprise cannot provide it, participation in joint ventures by enterprises from other industrialized nations is suitable and appropriate. In such a case the foreign trade enterprise will participate only in delivery of technology and possibly in performing such services as feasibility studies, training personnel for the contracting party, assistance in starting up production under license, etc. The value of involvement on a participation basis is from the outset a percentage of the cost of the entire delivery.

Some foreign consortium partners may have greater possibilities of obtaining bank credits for financing the entire venture. And only in this way can the supplier of technology and services go through with its export transaction. I believe that utilization of this type of activation of export of Polish scientific and technical know-how is extremely desirable.

At this point we should also mention one of the major obstacles impeding international transfer of technology, and particularly the export of licenses to developing countries. I am referring to language problems. Preparation of the requisite technical documentation with descriptions of industrial processes, technical drawings, procedural instructions, etc in the different languages used in importing countries for the most part involves very difficult, laborious time-consuming preparation of the technical proposal proper and its implementation. We might also mention difficulties currently encountered in this regard in correspondence as well as indirect contacts between technicians of both parties, in training the licensee's personnel, especially foremen, skilled workers, etc.

All these difficulties could be eliminated if the countries involved were able to employ a single, common international technical language. This is a very difficult problem to resolve. But it would seem that under UN auspices and with gradual elaboration of a common technical language (for example, in the field of electronics, chemistry, etc) it would be possible to obtain good ultimate effect over the long run.

I should also like to mention that a UN Conference on Science and Technology for Development was held this year in Vienna. The conference agenda included adoption of previously-drafted procedural principles to be applied in transfer of technology, both by the licenser and licensee (so-called International Code of Conduct on Transfer of Technology). By the time this article reaches the reader, it will already be known what binding principles of conduct have been agreed upon and adopted. Let us hope that thanks to regulation of this difficult and controversial matter there will develop conditions promoting greater transfer of technology to developing countries and for their industrialization, for precisely this is the intention of the United Nations Organization.

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CSO: 2600

EXPORT SERVICES IN PRODUCTION ENTERPRISES DISCUSSED

Warsaw HANDEL ZAGRANICZNY in Polish No 12, 1979 pp. 30-33

[Article by Adam Kochane and Ryszard Nadratowski]

[Text] The present state and the anticipated changes in the field of the organization of export services in Lower Silesian industrial enterprises permit consideration of types of organization which would make it possible to perform effectively all the operations which comprise the preparation and implementation of exports.

The types of organization presented by us (we will also call them models) are increasingly complex structures at which an enterprise arrives through improving subsequent types of organization in accordance with a changing situation. This does not mean in the least that one of the types of organization is preferable to another regardless of the enterprise and the situation involved. However, note should be taken of the fact that a great many factors decide which type of organization can be regarded as the best of those which are possible. Among those are:

--the volume and rate of growth of exports;

--the total number of employed personnel;

--the structure (differentiation) of exports;

--the kind of product exported (with regard to facility of production, sale, followup service, etc.);

--the differentiation of exported products

--the necessary intensity of canvassing and promotion activity;

--the changing needs of the consumers;

--the specifics of business trends in a given goods market;

--the form of cooperation with the foreign trade enterprise;

--the labor consumption of the transport, shipping and customs operations in export business;

--the general level of the qualifications of the employees of the export service;

The analysis which was made in the first part of this study, makes it possible to identify five basic models of export services:

I. An export specialist in an enterprise which does not have a separate export section;

II. An export section in the division of sales and exports (or in the divisions of trade, sales, goods transactions);

III. An export division without sections;

IV. An export division with separate sections;

V. An export division assisted by a marketing division performing the role of a staff unit.

MODEL I: AN EXPORT SPECIALIST IN THE SALES DIVISION

The lowest degree of the organization of the export service in a production enterprise is characterized by lack of any separate unit or group of persons in charge of exports. The operations related to the preparation and implementation of exports are performed by the employees of several organizational units, these operations representing only a part of the assigned duties of each of the employees. This type of organization can be utilized in those enterprises which export little, maintain contacts with a regular group of customers, and perform a minimal number of commercial and technical operations related to exports.

In such enterprises, the operations comprising the preparation and implementation of exports are performed by the employees of the sales division (or the division of trade, sales, goods transactions), the economic division, the division of planning, of production preparation, as well as of the division of transportation and shipping. However, insufficient integration of objectives, conflicts of interests, and lack of a sufficiently clear definition of the principles of cooperation and the relationship between the individual units, at times result in shortcomings in the fields of preparation of exports, planning of production and sales, as well as coordination of transportation and shipping operations; this also results in the emergence of several sets of reporting. The consequences of the above-described state of affairs are: nonfulfillment of export tasks

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1. HANDEL ZAGRANICZNY No 10, 1979

uneven implementation of export plans, high sales costs, and losses incurred by shipping delays and unsatisfactory quality of the products. Special mention should be made of the frequent lack of current and reliable information on the status of implementation of export plans and of individual orders, which lack, besides, is a result of the above-described imperfection of the system of reporting.

The creation of the position of export specialist in the sales dividion aims to assure:

--a better coordination of activities and a more efficient flow of information in the preparation stage of export production and during the canvassing action;

--an effective, direct control of the implementation of tasks in the field of exports;

--reliable and up-to-date information which would aid in decisionmaking with regard to exportation of products;

--a better orientation as to customer demand trends in foreign markets, in order to adapt to them more quickly.

MODEL II: AN EXPORT SECTION IN THE DIVISION OF SALES AND EXPORTS

At present, the most frequently encountered type of organization of export service is an export section functioning in the division of sales and exports (or the division of trade, sales, goods turnover). The main difference between the previous model and this one is the emergence in the latter of a group of employees who concern themselves exclusively with export problems and who are responsible for a relatively wide range of matters related to exports, and who are able to improve their specialized qualifications.

In enterprises in which exports represent a small share of total sales (particularly when an enterprise does not receive tangible benefits from exports or these benefits are disproportionately small in relation to additional financial outlays and effort), frequently encountered in the phenomenon of underestimating the importance of export activity.

The type of organization under discussion is suitable for enterprises whose exports are concentrated both in merchandise and geographically. It is, however, unsuitable for enterprises where exports require intensive canvassing, prolonged negotiations with potential customers, and substantial modification of products, especially those which exemplify the antagonistic character of sales for domestic market in relation to the export plan. In the latter case, calculations will be made frequently with the aim of establishing whether with the current delays in the fulfillment of the production plan it pays to devote one of the tasks (a more difficult one, of course) to complete fulfillment of another task. On the other hand, experience demonstrates that usually it is export production that is the worse for it.

In determining the range of the duties of the employees of an export section, in most of the cases to which Model II pertains, one should give preference to the criterion of functionality, If, however, an enterprise exports only a few types of products, while the group of customers is also limited and there is a need for conducting selective marketing activity, then the application of the criterian of merchandise or geography (or both simultaneously) can prove more advantageous.

MODEL III: AN EXPORT DIVISION WITHOUT SECTIONS

The considerable labor consumption of the activities comprising the preparation and implementation of exports, the need either to intesnify many operations in order to improve the effectiveness of exports and/or to increase sales are the most frequent reasons for creating an export division in place of a section which is a part of the division of sales and exports.

In this section, the following positions can exist:

--for implementation of export of finished products;

--for cooperative exports;

--for exports of spare parts;

--for exhibits, fairs, and advertising;

--for planning and reporting;

--for offers, calculation and effect veness of exports.

Finally, the structure of the organization of the export division depends on the specifics of a given enterprise; some of the mentioned positions can be duplicated, while there may be no need to create others.

In view of the lack of sections (lack of section managers) and the relatively large share of complex problems in all the matters within the competence of the employees of the export division, it often proves to be expedient to create 1-2 specialist positions to which are appointed those employees whose qualifications are the highest in the division. They are then de facto deputy directors of the division and they perform leader functions in those groups of tasks and problems in the export division that are the most important.

The export division should be subordinated to a deputy director for trade matters (for administrative and trade matters, etc.), or to a deputy director for economic matters if the first of these posts has not been created in the division. Acceptance of another type of organization is risky, because the other representatives of the management of the enterprise, as a rule, lack the time needed to supervise and intervene in export matters.

This is also mentioned by respondents in their answers to the questions contained in the poll of the Polish Chamber of Foreign Trade Branch in Wroclaw.

Model III in the majority of production enterprises can represent a coal-oriented structure of the organization of export service. Theoretically, it assures sufficient efficiency in the area of preparation of contracts, implementation of orders, and efforts at improving the effectiveness of exports. However, the attainment of this level of effectiveness depends to a large extent on the correct organization of supplies, production, on creation of a proper atmosphere surrounding export matters, and frequently on the qualifications of the division employees.

MODEL IV: AN EXPORT DIVISION WITH SEPARATE SECTIONS

The next level of the organization of the export service is characterized by two sections: export preparation and export implementation. The separation of both forms of activity is related to the need to assure advantageous conditions for export preparation, which is put in second place in an export division which lacks sections. Such a situation, however, if permitted to last for a longer period, can cause a regression in the exports of a given enterprise. All that is needed is for several important customers to cancel their orders, or the same customers to await offers of products which hitherto have not been available for shipping (or have not even been included in the exporter's production program), and it will turn out that the manufacturer is unable to prevent the loss of his hitherto regular foreign customers. Therefore, enterprises which export a considerable portion of their production and meet with strong competition in foreign markets, should emphasize particularly the activity which we have defined as export preparation.

Involved here are:

- reasearch and development activity, with consideration given to anticipation of export possibilities;
- intensification of the canvassing activity;
- improvement and diversification of the forms of distribution, service, and promotion in individual markets;
- constant efforts aimed at establishing the good reputation of an enterprise and assuring a greater share of sales of products under the manufacturer's own trademark.

The change in the proportion of current and prospective tasks in the area of export activity is reflected in the structure of the organization and in the range of operations assigned to individual posts.

The principal duties of the manager of an export section include, in this case:

--preparing long-range export plans;

--supervising the preparation of drafts of agreements concerning research of foreign markets, exports, and influencing foreign markets (in particular, agreements concerning commissions and services);

--coordinating plant exports (in the case of a multiplant enterprise);

--representing the enterprise in the area of product offers, conducting of negotiations, and implementation of export tasks;

--judging prototypes of products earmarked for export;

--controlling the fulfillment of tasks anticipated in export plans, with particular regard to guidelines and effectiveness of export activity;

--supervising the handling of export claims;

--cooperating in setting up a program of periodic training in the field of exports for employees of the enterprise.

The principal duties of the manager of the section of export preparation include:

--planning and managing foreign market research;

--preparing agreements concerning foreign market research, exports, and influencing foreign markets (in particular, agreements concerning commissions and services);

--directly supervising planning in the area of export of products;

--verifying price calculations of products earmarked for export;

--planning canvassing activity in foreign markets;

--organizing active participation of the enterprise in the International Poznan Trade Fair as well as in foreign fairs and exhibitions;

--supervising the preparation, execution, and shipment of certification and canvassing models;

--preparing negotiations with foreign contracting parties;

--formal and merit-oriented controlling of reports on business trips abroad as well as records (notes) of conversations held with foreign contracting parties;

--evaluating and analyzing the effects of promotion activity and of the distribution and service methods utilized in individual foreign markets.

The employees of the section of export preparation are directly responsible for the implementation of the following tasks:

A. positions for research and analyses of foreign markets:

--preparaing analyses which were assigned to a foreign market specialist (e.g., according to the language criterion) in the form of bulletins re export conditions;

--preparing periodic forecasts of the sale of products;

--supplying market information to canvasers and to the employee in charge promotion activity in foreign markets.

B. position for planning and reporting:

--preparing export plans, attestation and canvassing in cooperation with the Polish foreign trade enterprise;

--direct control of the progress of the canvassing action (inquiries, orders, status of the foreign orders file);

--preparing daily reports on production output, implemented shipments, and the status of the supplies for export production;

--preparing and transmitting reports on implementation of export production to the association and the Polish foreign trade enterprise;

--keeping a main register of export invoices.

C. position for advertising, exhibitions, and fairs:

--preparing merchandise lists, offers and accompanying materials;

--planning of advertising activity in foreign markets in cooperation with the Polish foreign trade enterprise; supervising the preparation of advertising materials and controlling the quality of their workmanship;

--controlling the effects of advertising campaigns conducted in foreign markets;

--cooperating with the Polish foreign trade enterprise in establishing the forms of promotion used in connection with exhibitions and fairs organized abroad;

--organizing and participating in selected exhibitions and fairs abroad.

D. position for canvassing:

--gathering and analyzing information about the situation in individual foreign markets;

--ordering the making of products earmarked for certification and canvassing abroad;

--setting up, in consultation with the Polish foreign trade enterprise, detailed programs of canvassing trips abroad;

--participating in export negotiations conducted in Poland;

--informing the units of the enterprise about the status of the progress of negotiations and about the requirements of the contractors;

--elaborating proposals concerning the means of promotion, advertising campaigns, modifying the methods of selling as well as the conditions of distribution and the methods of after-sale servicing in individual foreign markets, etc.

The manager of the section of export implementation has the following duties:

--monthly planning of exports;

--supervising ordering, and quality control of products earmarked for foreign customers;

--coordinating shipments, and control of the implementation of export orders;

--supervising export shipments of finished products and spare parts;

--supervising warehousing of finished products and spare parts awaiting shipment abroad;

--supplying the data for reporting, and for the records and statistics of export turnover;

--handling claims of foreign customers;

--keeping a file on claims;

--calculating the effectiveness of exports;

--cooperating in the preparation of agreements concerning export deliveries and service activity abroad.

On the other hand, the employees working in the section of export implementation perform the following operations:

--calculating the profitability of export transactions according to the range of products as determined by the section manager;

--preparing data for monthly schedules of export production;

--ordering the making of finished products or spare parts earmarked for export;

--cooperating with the Polish foreign trade enterprise and with foreign contracting parties during the implementation of contracts;

--making transportation arrangements;

--preparing documentation for shopping, and notifying about shipments;

--filing export invoices pertaining to orders being implemented;

--preparing documents related to claims and to preparation of arbitration proceedings.

Employees in charge of canvasing who work in the export section perform difficult and responsible tasks. The results of their activity determine the number of foreign orders received, their value, as well as the profitability of exports. In addition to canvassers who are responsible for the trade aspects of the canvassing activity, in many enterprises it will be appropriate to appoint technical employees who will be responsible for the technical aspects of the negotiations in progress. In both cases, one should give preference to the geographical criterion of the division of the competencies of the canvassers. The superiority of this criterion to the merchandise criterion is a result of constant contacts of the same canvassers with individual customers or sales markets.

Canvassers who are in charge of production and technical aspects of the above-mentioned activity frequently contact representatives of foreign certification bureaus, laboratories and organizations engaged in quality control. Therefore, care should be taken that they should demonstrate the knowledge of the principles of operation of these institutions as well as the principles and premises of decisions made by them concerning the awarding of certification diplomas.

MODEL V: EXPORT DIVISION ASSISTED BY A MARKETING DIVISION

Differing from the previous variant, Model V assumes the existence of two units performing in various fields the functions of the export service of a given enterprise. The marketing division[2] does not formally belong to the

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[2] The name of the unit, of course, is a matter of secondary importance; what matters, however, is that it should imply that the division is engaged both in research of markets and in influencing them.

trade service of an enterprise, because it is a staff unit which prepares decisions concerning the direction of the development of production, the utilization features of new products, their sale dates, the principles and methods of influencing the (domestic and foreign) markets, selection of sales markets and their appropriate segments, as well as price policy, distribution, and service to users of products.

As we can see, the marketing division performs extremely vital strategic tasks, is responsible for the efficient functioning of the system of communication with the environment, and also exerts considerable influence on the effects of sales abroad.

In recent years, quite a few marketing units have come into being in our country, both at the level of associations and of enterprises. Marketing units were created much more often in domestic and foreign trade enterprises than in production enterprises. The reasons for this state of affairs can be sought, among other things, in the traditional view of the management of many enterprises concerning the matter of the division of roles between the manufacturer and his trading partner, in the orientation of the activity toward the "product" and not toward the "consumer," in the market situation (a seller's market), and in personnel limitations.

The marketing division appearing in the type of organization under discussion helps to intensify foreign-market research and creates conditions favoring more intensive influencing of such markets. Being concerned simultaneously with problems of domestic and foreign sales makes it possible to establish and implement a comprehensive policy in the field of marketing, which policy is the condition for the optimization of a total financial result.

The basic tasks of the marketing division include:

1) preparing programs of marketing research of the domestic market and of foreign markets, jointly with domestic as well as foreign trade enterprises with a possible participation of third parties (e.g. scientific research institutes);

2) conducting independent marketing research, in accordance with an approved annual program;

3) supervising the utilization of the results of marketing research by individual marketing units;

4) pronouncing opinions on the anticipated directions of the growth of an enterprise;

5) working out the principles of selection of distribution channels and of the organization and performance of product service abroad;

6) preparing plans and programs of promotion of products in Poland and abroad;

7) supervising the implementation of schedules of introduction of new products for sale (among others, coordination of activities, establishing the dates and means of introduction of products for sale, as well as the quantities anticipated for sale);

8) preparing guidelines, and merit-oriented control of the program of training the employees of an enterprise in the field of marketing.

The above-mentioned type of organization requires the employment of a relatively large group of persons, most of whom are concerned exclusively with problems of exports. The profitability of this variant depends, among other things, on the influence of a precise knowledge of markets (including foreign ones) on decisions made in the utilization of this information and on the degree of freedom of an enterprise in the area of selection of the possible variants of its activity in the market.

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The objective of considering the topic of the organization of the export services of production enterprises was to call the attention of the readers to possibilities, often unnoticed in practice, of substantially raising the level of the effectiveness of the activity of economic subjects in this field. Research has demonstrated, often contrary to the opinions of the representatives of the polled enterprises, that the state of organization of the export services does not correspond, in general, to the standards required for efficient and effective action. The organization models which have been presented here should make it possible to evaluate the appropriateness and the degree of perfection of the organization types which are utilized in enterprises and to point out the directions and methods of improvement, and also to inspire a reorganization of the export services. We expect, too, that this article will stimulate the presentation of other views and considerations and will also increase interest in the problems to which we have devoted our research. Such a discussion would certainly lead to a definition of the basic principles and methods of improving the organization of the export services of industrial enterprises.

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CSO: 2600

USE OF NEW, RECYCLED MATERIALS FOR CONSTRUCTION NECESSARY

Bucharest REVISTA ECONOMICA in Romanian No 5, 1 Feb 80 pp 7-9

[Article by Dr Gh. Polizu: "Drawing Local and Reusable Materials into the Economy"]

[Text] During the last two decades, the demand for emplacing production forces throughout the country, and the completion of the vast housing program -- essential components of the party's socioeconomic policy -- have resulted in extensive investments made in the construction materials industry. Today, conditions exist in practically every county to satisfy the provisions of this program and the needs of the population at a local level, with continued actions being taken to develop and improve the productive potential of this domain.

In retrospect, the value of this socioeconomic policy option becomes evident both from its outstanding effect in improving all of the country's localities, and from other significant effects such as reduced transportation efforts. It must not be overlooked that construction materials, which are needed in large volumes and which are of considerable weight, can seriously affect the transportation sphere, especially as a result of excavations.

Maximizing the Effect of Utilizing Local Resources

But the distribution of construction materials units throughout the country raises the special problem of raw materials, which are not always to be found near production units and consumption centers, and which are often found in quantities that are rapidly exhausted. The solution to this problem, in terms of finding new resources that can be used to manufacture construction materials, is one broad field of interest which must be added to the wider requirement for reducing material costs in this area of activity. We therefore believe it would be useful to point out some guidelines which can make a significant difference in defining a new direction for the production of construction materials and goods, and which can become part of the effort to maximize the effect of production activities.

Thus, in the spirit of the indications provided by Nicolae Ceausescu, actions are taken to diversify the materials used in investment projects, increasing the proportion of materials available locally, in particular for projects which require small amounts of materials, and using those materials that can be produced in small enterprises. In this category are projects to expand the use of stone in constructions, both as such -- foundations, roads, and so on -- and in processed form -- masonry -- as blocks or bricks formed of low density tufs or limestone, such as those found at Anina, Podeni, Persani, Borsec, Tioc, and so on, as well as the use of various filling materials of a diatomaceous type or of other natural light rocks.

This extremely important action must be viewed as an all inclusive concern to reintroduce into the economy new, diversified, and unjustly overlooked resources, seeking to reduce the pressure placed on the industrial production of construction materials. In addition, the reintroduction of locally available materials into the economy offers great advantages in reducing the amount of transportation, and stimulates interest in managing and meeting needs on a local level. Moreover, the use of local materials such as tufs and soft limestone, makes it possible to create local color, a proven antidote against monotony in the architecture of our localities.

The full exploitation of these resources creates important tasks for researchers, designers, and builders, in terms of perfecting new, non-traditional approaches, applying these methods, and combining them in constructions which meet the need for thermal protection in buildings and the demand for higher productivity at work sites.

Integrating the Concept of Exploiting Resources in Series

In discussing the need for a rational management of the country's resource potential, we believe that the reconsideration of locally available resources must become part of the more general concern for the complete utilization of the potential involved in all socioeconomic activities, and for the creation of conditions that will allow the more rapid introduction of technologic progress into production. Means must be found to transform into useful products the raw and other materials introduced into production processes. In this respect, it must be understood that any means for transforming raw and other materials into useful products leads not only to the manufacture of these products, but also to wastes that can be used as well.

It is clear that if as a result of one process, a raw material is transformed into a useful substance to be processed in a given production branch, the remainder of this material can be introduced into another transformation path until the entire resource has been exhausted. In this respect, we want to welcome the discussion initiated by REVISTA ECONOMICA on the topic "An Active Circular Process," as a means for complete utilization of the potential of some resources in productive activities organized in a logical chain, through successive iterations until the economic exhaustion of these resources.

In the construction materials industry, as opposed to other industries (such as the light industry for instance), the important problem is not to recycle goods removed from use, but to continue to exploit secondary resources derived from the production of other industrial goods, or to introduce into production new material resources that have been used little or not at all, such as stone in masonry projects. This does not mean that construction is not also facing the problem of recycling construction materials removed from use, such as lumber, bricks, or finishing materials obtained from demolition, but rather that their proportion is relatively small compared to that of secondary resources, and that it is more specifically associated with the interest shown for this exploitation at construction sites as compared to industry.

For this reason, we consider that the recycling of construction materials is a means for exploiting new raw materials with certain specific properties, whose processing we must learn and organize in increasingly better conditions. This means that during the next period there is a need to properly organize the documentation of these resources, and to establish their economic value as well as the best way to use them. We raise this question because the resources that can be exploited by the construction materials industry (thermoelectric plant ashes, furnace slags, and to the extent that they cannot otherwise be used, polyethylene bags, leather from worn out shoes and transmission belts, discarded plastic material housings, shells, pits, sawdust and other wood scraps, vegetable fibers and textile rags, and so on) are available in practically all branches and sectors of the economy, from agriculture to some of the most adavanced industrial activities. Unfortunately, little is currently known about their existence, and even more seriously, relations exist in very few cases between the holders of the resources and those who could exploit them. Moreover, inappropriate or negligent storage of these resources often forces users to acquire special equipment for their utilization, and to incur expenses which could be avoided with a little care.

Efficiency of Stronger Interdepartmental Collaboration

Interest in this type of sequential organization has existed in our country for a long time. For instance, that is how the construction materials area was organized at the Militari industrial site in Bucharest, by building a number of plants which operated in series, each one using the secondary product or resource created by its neighbor. Thus, the plant for autoclaved cellular concrete used as raw material the sand obtained from the foundry for tubs and radiators, and its own product was used as thermal insulating material by the plant for large panels. The plant for prefabricated products had organized a department for assemblies and semi-finished products for installations, which annually provided over 4000 apartments with large panels fully equipped with all that was necessary for the apartments. The intent of this zoning was primarily to deliver to construction sites housing units composed of large panels fully equipped with installations and finishing, and only secondarily to provide the separate products of the various plants. Unfortunately, a number of shortcomings in the quality of the foundry sand and a number of technical changes and modernizations did in time weaken the initial sequential concept. More recent attempts at sequential manufacturing also failed to attain the success expected by planners, each time reasons of an organizational and subordination nature being considered predominant, such as in the case of the Enterprise for Plastic Materials and Metal Frameworks of Bucharest -- subordinated to MEFMC (Ministry of the Forestry Economy and Construction Materials) -- which had to use the windows produced by the neighboring large plant -- subordinated to MIU (Ministry of the Light Industry).

This situation must absolutely be corrected, and for this it is necessary to overcome the mentality of apparent barriers created by the present subordination of enterprises, so as to achieve a good interdepartmental collaboration whose purpose is to maximize social effects independently of the branch that makes the production effort. In this manner, concerns and achievements aimed both at utilizing in the construction materials sector secondary resources created in other areas, and at applying systems that resort to unconventional energy sources arising in production or in the research on construction materials, can acquire substance and reality.

One such approach is the production of masonry products -- bricks -- from thermoelectric plant ashes, phosphogypsum, hydrated lime, and a very small amount of a chemical expander, the formula having been developed by the Bucharest School for Constructions with the cooperation of the Zorile Noi ceramic products plant of Piatra Neamt. Using these resources, 90 percent of which are so-called secondary resources, it is possible to obtain bricks with a lower density than the traditional clay ones; these bricks need no firing -- thereby greatly reducing manufacturing energy consumption -- since they can be hardened simply by being stored for several days in the plant's drying area. It is estimated that more than 20,000 tons of conventional fuel per year could be saved if the total production of the Piatra Neamt plant were converted to this product.

Several problems remain to be solved. The most important of these is the transportation of ashes from power plants, leading us to believe in the viability of associating these plants with construction materials enterprises which would transform into useful products the ashes resulting from coal burning, thus creating fully integrated industrial complexes that would no longer constitute an ecological problem.

Other exploitation ideas presently at an advanced stage of research at the Design and Research Institute for Construction Materials and Experiments on New Manufacturing Technologies, concern the reintroduction into the economy of recyclable materials derived from flax and hemp processing -- scraps -- and of those created by the textile and leather industries. The exhibits visited by the party and state leadership at the beginning of December 1979 showed a number of these products in the form of thermal insulation panels and of strips and panels for internal partitions. In contrast to other situations, recyclable materials are called upon to play an important role in this class of construction elements, in terms of fulfilling their functional role in accordance with their intrinsic properties. For insulating panels for instance, the thermal characteristics of materials are decisive in defining the thermal conductivity and weight of panels, and for internal wall strips designed in lenghts equal to room heights, the quality of the resources determine the weight and rigidity of the elements.

As we have pointed out, the intervention of reusable resources can also be notable at construction sites. In addition to the use of products resulting from demolitions, resources such as expanded slag can be used in the production of thermal insulation for housing ceilings, without significantly increasing the consumption of major structural construction materials to support the reasonably thick layer -- and consequent reasonable weight -- of the material needed to provide adequate thermal insulation. What is now important, is to understand the present requirements and to concert our efforts so as to overcome the circumstances and mentalities which prevent organized and efficient action to fully and most effectively utilize the resources that are available to us.

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AREAS FOR IMPROVED IMPLEMENTATION OF ECONOMIC MECHANISM

Bucharest REVISTA ECONOMICA in Romanian No 10, 7 Mar 80 pp 18-19

[Article by Dr Alexandru Babe, Superior Court for Financial Control: "Self-Management -- An Instrument for Raising the Qualitative Level of Economic Activities"]

[Text] Directions for Action Based on the Experience Accumulated in Practice

The modality in which the enterprises and centrals are adapted to the requirements of economic-financial self-management must be constantly analyzed by the ministries, the central synthesis organs, and the research institutes. This necessity derives from many causes. For instance, self-management, as a central aspect of the new economic-financial mechanism, is designed to contribute directly to raising the qualitative level of all economic-financial activities and to development of the reserves for increasing economic-financial effectiveness in accordance with the possibilities and requirements of the stage through which we are passing; consequently, the results obtained must be evaluated critically for the purpose of developing and generalizing positive processes and impeding and eliminating those processes which are negative. Thus self-management has replaced a certain type of economic management which is based on an obsolete economic concept and which has generated a certain practice which has made it possible for some economic units to tend to work during a certain period as they have in the past, to make greater use of the forms of the new economic-financial mechanism without really making the content modifications; consequently, certain corrective measures are required so that the objectives sought by the new mechanism are fully achieved.

This is the reason why I believe the exchange of opinions organized by the REVISTA ECONOMICA about the problems raised in connection with the functionality of the economic-financial mechanism to be particularly useful.

The Necessity for Thorough Justification of the Plan

It is obvious that through the introduction of the new economic-financial mechanism and, in particular, through the changeover of the enterprises to self-management, all the activity of the economic units and all their behavior were reoriented. After the initial 'shock' in respect to the requirements of the new mechanism, the enterprises began to adapt to the indicators and to the financial and credit relationships generated by the functionality of this mechanism, thus giving a completely different importance to the qualitative aspects of economic-financial activities. The indicators to which the enterprises were not especially sensitive in the past -- such as net and physical production and production costs -- are today receiving the full attention of the enterprises. The relationship created between the degree of fulfillment of the net production plan and the level of the admissible wage fund has been proven fully justified, and the enterprises have reacted positively in respect to all the factors which influence net production. In this respect, the economic-financial results for 1979 are also conclusive: most of the economic units fulfilled and surpassed the net production plan, achieved the goals for reduction of production costs, and fulfilled profits and efficiency indicators. Even now when some enterprises have not fully realized the plan goals, the proportion of non-realizations (especially in the case of net production and production costs) is less than in the past.

The functionality of economic-financial self-management is closely connected with justification of the plan goals by each enterprise, each economic unit and each economic subunit because all the levers and mechanisms specific to self-management are based on the plan goals. This also means that it will be impossible to achieve a proper development of self-management without the plan goals being established as well as possible by enterprise. Obviously, to the extent that the plan goals (net production, production costs, and so forth) prove to be underestimated, the collectives in the enterprises are not mobilized to a sufficient extent to identify and develop the reserves for improvement of economic-financial activities. Conversely, to the extent to which the plan goals are overestimated, the enterprises do not have the premises needed for acting efficiently to achieve plan realization, and their economic-financial situation will gradually worsen.

In most of the enterprises, the planning activity, taken in its broad sense, has been strengthened, and the economic units have involved themselves in the process of economic dynamism, in the renewal of production, and in the promotion of technical progress. Equally important is the fact that the plan proposals of these enterprises have been thoroughly justified, and as a result the final goals correspond to the initial goals (or show minimal differences). There are also some enterprises which continue to work in the economic-financial planning process in the same way as before the introduction of the new economic-financial mechanism in the sense that they base their proposals on the same production and the same technologies, waiting for external "impulses" to force them to changeover to modernization of production, to introduction of new technologies, and thus to achieving an increase in the qualitative level of all activities. Obviously, under such conditions it will be possible for there to be some relatively great differences between the proposals of the enterprises and the approved goals, which sometimes will also have an effect on execution through the different weights appearing in fulfillment of planned indicators.

Actually, the problem we are discussing has relatively deep roots. Economic-financial self-management necessarily implies that each enterprise, on its own initiative, should study and should adapt rapidly to the requirements of the domestic and the foreign markets, should continuously create a technical "stockpile" and its own technology in respect to the renewal of production and the raising of the qualitative parameters of products being fabricated, as well as reducing production costs (especially material production costs). It is these very aspects of the activity of some enterprises that are not sufficiently developed yet; this has resulted in a number of negative and significant consequences both in the plan preparation phase and in the execution phase: delays in preparation of fabrication of some products in relation to plan goals; failure to include production cost reduction in the reduction goals (which also attests to the insufficient justification of programs for cost reduction), and others.

One of the principal directions toward which attention must be directed is better utilization of the engineering and technical apparatus in the economic units so that this entire apparatus can be occupied on a priority basis with development and application of technical solutions for the purpose of improving production activities. This is even more needed because in some enterprises a portion of this apparatus is utilized in office work (including the formulation of explanations referring to failures to include items in the plan goals andjustifications for some failures in plan realization).

Analysis of data in a number of enterprises (in the machine building industry and also in other industrial sub-branches) shows that improvement of the preparation for and organization of production in accordance with the current reqyuirements of technical progress and the necessity for reducing material and energy consumption levels constitutes the principal means by which it is possible to act to increase the effectiveness of production and thus assure good functionality in the self-management of the units in question. In some enterprises, although they have prototypes that are superior to those products currently in fabrication, placement of such prototypes into current production is accomplished only after prolonged periods of time owing to technical-economic deficiencies; in other units, in spite of the fact that new and more economic technological procedures are known and tests have been made in respect to their promotion, generalization of such procedures has taken much too long. We thus reached the conclusion that it is necessary to strengthen the technical-economic capacity of the enterprises for the purpose of achieving a rapid expansion and generalization of technical progress.

Income and Expenditure Budgets -- Instruments for Analysis and Management

Within the framework of economic-financial self-management, income and expenditure budgets have been conceived of as direct instruments of the management process. Experience indicates that in the most important economic units they have begun to fulfill this important role. Through their ability to synthesize and concentrate the economic-financial indicators and through the simplicity of their construction, the income and expenditure budgets have made it possible for the collectives of workers to understand the principal problems which are raised in connection with the financial situation of the enterprises. The income and expenditure budgets have also proven to have an important mobilizing and stimulating role in improvement of economic-financial activities.

In spite of all this, in some enterprises the income and expenditure budgets still have not acquired a significance much superior to the financial plan previously used. Certain explanations have been given in the pages of this magazine; these explanations are real. If the income and expenditure budgets do not reflect the entire economic potential of the enterprise, if they are not correlated with the other sections of the plan, they lose the importance which they should have. If frequent changes are made in the plan and if these plan changes are not incorporated into the income and expenditure plans except after long delays, inevitably these budgets can no longer be used in the timely management process. What I would like to stress is that such deviations are not causally connected to the economic-financial mechanism nor to the structure as such of the income and expenditure budgets, but rather express more the deficiencies which are encountered in the economic-financial planning process and the plan execution. In order to eliminate these deficiencies, the enterprises themselves will have to improve the activities of the economic-financial apparatus so as to deepen all aspects of planning. At the same time, the centrals will have to ensure that there is stability in the plan goals by enterprise and will have to avoid changing the indicators, especially before the close of the planning periods.

In addition to the causes mentioned, there are others also, in our opinion, which prevent at present the income and expenditure budgets from becoming real instruments of management activities. In this respect, it must not be omitted that the income and expenditure budgets contain indicators for the overall activities of the enterprises and that they must necessarily be accompanied by a distribution of plan goals which supports the principal financial indicators by sections, shops, and other work areas and by preparation of expenditure budgets by sub-units. However, such an internal distribution of plan goals has not been made in all enterprises or the distribution was incomplete. The consequences are known: the plan objectives in connection with net production, expenditures, etc. could not be individualized in all cases in relation to the goals in the income and expenditure budgets and it was impossible to concretize the responses in some important fields of activity, even though self-management requires that in each enterprise they establish -- as analytically as possible -- the goals and responses connected with plan fulfillment.

Economic-financial self-management is also connected with improvement of the information system and the accounting system. It is impossible to act in the most efficient manner for realization of the income and expenditure budgets as long as the decision-making authorities in the enterprises do not know on a daily basis (or at short intervals of time) the manner in which plan goals are being realized and what deviations exist in respect to planned expenditures. Only by modernization of the information and accounting systems will it be possible in each enterprise for them to have information immediately available after the completion of the month or the quarter in respect to net production realized and for them to be able to recalculate the wage fund on the basis of effective data only. Based on the data available to us, only a relatively small number of economic units have effectively begun to restructure their information systems and to promote modern techniques for the accounting of costs (among which is the normative technique). This is why the problem of improving the information system within the enterprises themselves and improving the instruments and techniques specific to their activities is very critical and conditions the self-management of the economic units.

Some enterprise heads continue to look on income and expenditure budgets more as instruments of financial accounting, which should be the exclusive concern of the financial-accounting departments. Undoubtedly, the financial accounting departments in the enterprises have an especially important role in preparing and monitoring the execution of the income and expenditure budgets, however, the income and expenditure budgets synthesize -- in the language of the financial indicators -- all the activity of the collective of workers and express a certain level of technical-economic organization and management. This is the basis for the conclusion that the income and expenditure budgets involve the activity of all departments of economic units.

Realization of Their Own Funds is a Condition for Full Affirmation of the Self-Management of the Enterprises and Centrals

The funds created in the enterprises have assured self-financing of their own development, accomplishment of some important actions of a social nature, and motivation of the collectives of workers. Additionally, having their own funds for development in the centrals has made it possible to realize investment programs involving the creation of new enterprises in the sub-branches and realization of relatively significant developments in the existing enterprises. The changes which have taken place in the distribution of resources have produced a strong influence on the enterprises and centrals since they were put into a position of creating the incomes necessary for setting up their own funds for development and motivation, of having to put up with certain consequences in the event of failure to realize these funds, and of being responsible for the manner in which the respective funds were utilized. Under these conditions, an intensification of the effects of financial and credit levers was noted.

There are also some enterprises which have not been able to fully set up their own development funds as a result of failure to achieve planned profits and scheduled amortizations. In such cases, in accordance with the conditions provided by law, the enterprises have been able to receive supplementary credits, for which they will pay interest charges. Of course, failure to realize their own funds has caused the units in question some temporary financial difficulties, which they will be able to avoid in the future only through exemplary fulfillment of the plan goals. During the course of the last year, there were also certain negative tendencies such as, for example, enterprises which deducted in advance on a priority basis from the incomes realized from their own funds and failed to meet on time their obligations to the centrals and the budget. Although by the end of the year all funds were regularized in accordance with the law, during the year some financial difficulties were caused at the central level which could have been avoided.

The above also brings out another especially important aspect: with the application of the new economic-financial mechanism, financial balance, conceived at the socialist economy level, is individualized for many funds and the consequences are no longer mechanically born by the budgetary resource fund. For the deterioration of the payment capacities of some enterprises, the responses will have to be individualized also, and the actions which are undertaken in such situations can no longer be limited to simple regularizations of a financial and credit nature, but instead must involve elimination of the causes behind the imbalances noted.

The financial-banking organs have special responsibilities. First of all, they must verify whether the enterprises and centrals have respected the standards in respect to setting up and utilizing funds, thus ensuring that in the process of distributing resources the interests of the enterprises and centrals have not been satisfied to the detriment of the general interests. Additionally, through the intermediary of the crediting process, the banks must act to prevent the formation of stocks beyond the necessary level and to accelerate the rotation speed of the circulating capital. A certain intensification of activities is also necessary in the field of monitoring the incomes of the state, taking into account the important position which the budget has on a continuing basis as the principal centralized fund created in the socialist economy.

The brief presentation of these few aspects concerning the self-management of economic units does not exhaust the entire problem area of the new economic-financial mechanism. The thing that it seems to me that it is possible to affirm with full certainty is that the experience of 1979 fully confirms the superiority of this mechanism and the wisdom of the party's policy adopted in this field. Self-management of the economic units creates the framework for raising the qualitative level of all economic-financial activities and, at the same time, by raising the qualitative level of all activities, the premises are assured for self-management to be affirmed even more fully.

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EXPORTS MUST BE ADAPTED TO MARKETPLACE DEMANDS

Bucharest REVISTA ECONOMICA in Romanian No 8, 22 Feb 80 pp 13-14

[Article by Dr Ioan Georgescu: "Adaptation to the Evolution of the International Market and Efficiency in Foreign Trade"]

[Text] The relative decline in the demand for some basic products and the intensification of the protective steps taken by the developed capitalist countries, to protect their manufacturing industries from the new exporters in the developing countries, have done nothing but increase the decline in the demand on the world market, in view of the worsening of the situation of the balance of payments of the developing countries, through the reduction of their incomes from exports. The decline in the average annual rate of growth of world physical trade to about 5-7 percent in recent years, in contrast to 1970-1974, when an average annual rate of 8.5 percent was achieved, is the result of these phenomena.

Of the essential characteristics of international trade in the current stage, the following should be pointed out: the trend of a reduction in the gap between the rate of growth of world exportation (physical) and that of world production (extractive, manufacturing and agricultural), indicating a decline in the force of expansion of trade and, implicitly, a decline in exportation's dependence on the volume of investments from a quantitative viewpoint; the trend of an abandonment of the production structures based on a high consumption of energy and raw materials, in some cases by means of an almost exclusive supply through importation (for example, Japan and the FRG) and the orientation toward products that add to the value of the raw material a big quantity of intensified labor (highly skilled labor, work of research and development, design, and marketing), concomitant with the expatriation of a number of energy-consuming industries.

Energy's pressure on the economy raises very strikingly the problem of technological engineering, called upon to surmount the "crisis" in energy-consuming technologies. Although the developed capitalist countries have managed in recent years, despite the slowing of their own economic growth, to develop exports at rates higher than the average world rate and to transfer the deficits in the procurement of raw materials and energy to the balances of payments of the developing countries, especially those that do not export petroleum, this was due mainly to the structural differences between economies, to the widening of the gaps in technical equipping and in infrastructure and to the situation that prevails on the technology market, where the prices are dictated by the possessors of technology. Within the international division of labor we are witnessing an extensive translational motion--in the sense that as the developing countries advance toward nontraditional industries, the developed capitalist countries advance toward sectors of higher and higher technological concentration.

The confrontation in international trade is occurring today between the structures of the national economies, with regard to the speed of adaptation of these structures to the restrictive conditions of the present: a crisis in raw materials and energy, a monetary and financial crisis and the expansion of interdependencies, concomitant with the expansion of protectionism.

The Third Dimension: Information

Attempting a generalization of the elements that condition the capacity to adapt to the evolution of the international economic environment, it seems useful to dissociate the three basic dimensions of any human creation: matter, energy and information.

Although the comparative advantages that some states have also created for themselves in the field of supplying raw materials and energy can be more or less overcome by means of a certain structure of the allocation of national resources, the ground of the decisive confrontation remains the field of information, seen in the broadest sense, beginning with the quantity and quality of the professional information possessed by the active population, the quantity and quality of the information furnished by the activity of research and development, contained in new products and technologies, and the quantity and quality of the information possessed with regard to the evolution of the international economic environment and, in the present case, of the specialized international market, of which the exporter wants to get himself a slice.

The most synthetic evaluation of the success in structural adaptation to the restrictions of the economic environment for foreign trade activity finds its expression in the country's balance of trade, as one of the forms of expression of the efficiency of foreign trade activity.

In our country's case too, the raising of the quantity and quality of the information utilized in material production and in marketing is decisive for increasing the capacity to adapt the one-fourth of social product offered for exportation. This is especially because for some products the levels of the material and energy consumptions are still too high.

In 1978, 2,300 types of machines, equipment, installations and apparatus with better performances, the great majority of them based on our own ideas, were assimilated in our country, and the value of the new and redesigned products represented 27.5 percent of the value of the commodity output achieved in the national manufacturing industry. This is an extraordinary economic potential, which, judged from the angle of the task of priority orientation of production toward the export demands, would have provided a capacity of renovation equivalent to about 80 percent of the export supply. However, the transformation of this possibility into a reality is conditioned by the quality and quantity of the information available at the time of conceiving, making and commercially releasing the new products, namely.

1. The technical norms and standards existing on the international market for each product, that is, what percentage of the world market for the product the segment of the products with characteristics comparable to the new product conceived by our own enterprise represents. At present, the quality of the information available in research and development activity depends on the so-called "critical mass" of the investments in research and development. Accepting the fact that, at present, the complexity of production and technology causes, as a rule, scientific and technical breakthroughs to no longer be the result of the effort of isolated persons but of staffs of researchers having at their disposal more and more sophisticated research, measurement and control apparatus, it follows that the financing of research and development at the level needed in order to achieve world priorities is very costly. Consequently, the establishment of sensible choices regarding the fields of research and development that we finance up to attaining the "critical mass" capable of unleashing world technical priorities is of great importance for maintaining a competitive level of production, a competitive rate of renovation. Such world priorities can then economically support the acquisition of high-quality information for the other sectors, through industrial cooperation or the purchase of licenses and engineering. (The technological balance with a deficit in countries like the FRG and Japan is very significant in this regard.)

Regarding Romanian inventions, under the conditions in which only 2,751 patent applications were registered in 1979, there must be greater effectiveness in making the decisions concerning application in the country or marketing for exportation, considering the fact that many firms eagerly await the expiration of the period of protection for intellectual property by patent so that they can then utilize the respective inventions for free. And unfortunately, much equipment made from Romanian inventions, not paid for by those who utilize them, is operating in the world.

At the same time, so that as large a part as possible of the 2,751 patent applications are transformed into a valuta contribution, it is necessary to take under consideration the proposal with regard to creating within the OSIM /State Office for Inventions and Trademarks/ a scientific and technical unit for testing and developing inventions of great value. Examples in this regard are offered by the firms of Novex in Hungary, the National Research Company in England, and so on, which take from the shoulders of the inventors the problems of obtaining protection for intellectual property, of integrating the inventions into production and of utilizing them in their own country or for exportation.

2. Another aspect that must be taken into account is the extent to which an increase in the competitiveness of the product has been or will be gained by means of renovation or redesign. How much has the net valuta contribution of exportation increased due to the expenses of renovation? With what specific consumptions of energy are the respective products achieved by the main world producers and, in the case of machinery and equipment, with what consumptions of energy does the equipment offered on the international market by other countries operate? How are the parameters of our own product alined with these levels?

Of course, the postcalculation data are too late and help only in the gaining of experience. However, the quality of the forecast of the sales on the domestic and foreign market, by means of which the order note for the investments was substantiated, and the quality of the later adjustments of the design in relation to the evolution of the international market (bearing in mind that a realistic forecast of the situation cannot be made for more than 6 months) are important for providing competitiveness.

3. The quality of the export program for a product, drawn up by the producer together with the specialized foreign trade enterprise, concomitant with the concluding of the agreement on offering for exportation between the producing ministry and the foreign trade ministry. This program includes: the strategy for adapting the product (in terms of finishing, conditioning and appearance) to the different markets envisaged; the channels of distribution identified as optimum for different markets; the strategy for the price and for international payments; and the ways of promotion and the means utilized for this purpose, combined in the program for releasing the new product. The latter must provide, for each country, the manner of releasing: the sending of catalogs and prospectuses accompanied by bids by mail, participation with the new product in fairs and expositions on the potential markets, the sending of samples to the representatives of the foreign trade enterprises on the respective market, the organization--in the case of complex equipment--of technical symposiums on the markets of interest, the inviting of experts of the firms interested in seeing demonstrations of the operation of the equipment, and mass media publicity (especially in the case of consumer goods). The enumeration of these details has significance more from the viewpoint of identifying the deviations from these standards of promotion. The last element, but not the least in importance, is the establishment of the trademark. We note with astonishment that, under the conditions of the greater and greater attraction that names with a Latin sound,* as an element of prestige and elevation, exert on the world market in the matter of trademarks, many Romanian enterprises cling to the registration of trademarks formed by combining hard-to-pronounce

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* Severin, Agros, Investa, Demusa, Ars Polona, Alfa-Laval, Alpine.

components (UFS, AMM, DPT, UMB, B, V, R and N--and the list can be continued, unfortunately, for whole pages).

Is There a Discipline of Adaptation?

A problem that is appearing more and more frequently in party and state documents is the imperative of speeding up the adaptation of the production for exportation to the demands of the foreign market. We now have qualitatively better conditions for attaining this objective. While the basic objective in the preceding stage was the development of the technical-material base for Romanian industry (metallurgical products, machine tools and basic chemical products), a part of which was also offered for exportation, these quantitative accumulations now permit the achievement of specialized production for exportation. The industrial units designated as specialized suppliers for exportation will also have to have a strategy for production for exportation, based on information in a technological forecast and a marketing forecast, a strategy continually adjusted to the evolution of the international situation.

In fact, the problem with which we are faced is not new. Proof: the detachment--from the big group of subbranches of management science--of a discipline that proposes to study the flexible adaptation of the enterprise to its economic environment, through the optimization of the flow of entries and departures, that is, the relations of supply and sale on the domestic and foreign market. Without being able to be regarded as a cure-all but only as a means of organization for obtaining high-quality information, marketing has proved to be a reliable aid for the promotion of products and for the economy of the enterprise in general. "The big firms," an author said, "do marketing not because they are rich, but are rich because they do marketing."

In 1979, we achieved over 2,000 types of machines, equipment, apparatus and installations with better performances, of our own devising, and 291 new and improved technologies, and the application of 900 Romanian inventions in the economy began. It is natural to ask ourselves: at what stage are the marketing programs for offering and releasing these products for exportation?

In comparison with the achievements in 1971-1975, when the Romanian Marketing Association was actively operating, when marketing nuclei in enterprises and industrial centrals and county branches of the association were set up, exportation-promotion programs were drawn up for a number of important products and groups of products, and an active exchange of experience was achieved by means of national symposiums and international congresses, the activity of the association is now on the decline. We consider it necessary to revitalize this association and the concern for marketing in the enterprises. Not on account of art for art's sake but because it constitutes a way of responding to the tasks that the party is placing before foreign trade activity.

Of course, professionalism and the mastering of the methods and techniques of marketing--a field in which the activity of retraining, especially at the "Stefan Gheorghiu" Academy, has important merits--are required for this. But, while the necessity of marketing in the activity of the personnel with a little older professional training has been recognized, the absence of these concerns from the instruction of the new generations of economists at the Academy of Economic Sciences [ASE] seems all the more incomprehensible. There are now disciplines of financial marketing, industrial marketing, agrarian marketing and the study of the economic situation for substantiating the planning decisions, and yet the specialized departments in the ASE are not always given the necessary attention. Although the introduction of marketing into economic education was put among the achievements in the Program for Improvement in Economic Higher Education, only 2 years after the approval of the program marketing has been abandoned to a large extent. In our opinion, this is a development that runs counter to the vital interests of the national economy, because the problem of the competitiveness of the products, of the competitiveness of our economy, is a problem of each working person, is the problem of raising the quality in all fields of activity.

Each enterprise with tasks of delivering goods for exportation can set in order, in accordance with criteria of efficiency, its priorities in its export supply, can participate actively in investigating the foreign market and in performing the activity of promotion.

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ROMANIA

LABOR OUTPUT REGULATION PROBLEMS, SOLUTIONS DISCUSSED

Bucharest REVISTA ECONOMICA in Romanian No 8, 22 Feb 80 pp 16-17

[Article by Adrian Rusu: "Discipline and Responsibiltiy in Devising and Applying the Work Rates"]

[Text] Over 85 percent of the whole increase in industrial gross output last year was obtained through the growth of labor productivity by 6.4 percent. The maintenance of a high rate for this indicator (1979/1975 equals 139.3 percent) represents an essential characteristic of the vitality of the Romanian economy--as the fact that the raising of the level of productivity is based not on the intensification of labor, on its content of effort, but on better technical equipping, on technological progress, the enrichment of professional knowledge, the rational organization of productive activity is characteristic of the qualitative aspects of this growth.

Gaining in importance within this complex of factors with which it is in a close interdependence, the organization of production and labor is asserting itself as a condition for intensive development, as an expression of an essential modernization, which involves the relations between man, the production technology and the object of labor.

Over 2,000 studies--collective creations with the value of a true mass movement--for utilizing as harmoniously, efficiently as possible the technical-material and human potential of the economic units through the better organization of storage and internal transportation, the manufacturing flows, the workplaces and so on were made last year and began to be applied. The extremely favorable economic effort/effect ratio of many of these studies signifies not only the concentration of attention on priority problems, not only the accenting of the specialization of the staffs of organizers, the mastery and practice of methods and techniques from the extensive contemporary specific arsenal, but also the affirmation of a viewpoint with a high degree of discernment, which, facilitated by the plan's exacting qualitative indicators, identifies reserves and suggests new possibilities.

Reserves and possibilities that were also taken into account on the occasion of fulfilling the plan for devising and improving the uniform work rates and standards in industry, building-assembly, design of constructions and technological engineering. Scientifically substantiated, in conformity with the time (volume) of work really needed under normal technical and rational organizational conditions, the objectives fulfilled from this plan in 1979 provide--especially in the branches of mines, petroleum and geology, machine building, agriculture and the food industry, and forestry economy and construction materials--for the economization of a quantity of manual labor equivalent to the labor of about 1,000 people. It is to be noted that, of the total of these rates and standards, 74 percent are applicable to the economy, 10 percent to a ministry and 16 percent to a group of enterprises, a structure in accordance with the requirements for as wide reproduction of efficiency as possible, with the principles of equity, with the necessity of stimulating the technical and organizational progress of all the enterprises toward the levels attained by the best units.

Referring to the results of these actions, the fact that the unit consumption of labor fell significantly for a large number of main products--for example, 7 percent for 8-ton, 135-horsepower diesel trucks, 8-11 percent for raw bituminous coal, open-hearth steel, 55 horsepower all-purpose wheeled tractors, lacquers and paints, and cotton-type gray cloth, over 17 percent for decorative veneer, and so on--strikes us as an extremely revealing example. We mentioned products in obtaining which basic improvements in engineering and technologies did not intervene last year, with the rise in physical productivity being due mainly to organizational measures, to the reduction of the indirectly productive and general-service workers to the absolute minimum, and to the correct application of the work rates.

Deviations and Distortions in Applying the Rates

In the duties of the organizational departments of the units, routine activities are affiliated with the activities with a character of conception, in the sense of frequency, the sphere of inclusion and the level at which they are exercised. To ensure the permanent correspondence of the rates to their content, which evolves in directions determined by the introduction of technical progress, by the improvement in the professional training of the personnel and by interventions with an organizational character; to correctly apply these rates; and to draw from the level of their fulfillment and from the analysis of the dispersion of the results according to sections, shops and workplaces conclusions for possible improvements--all these responsibilities that devolve upon the organizational personnel (and, within the framework of specific collaboration, upon the pay personnel) in the sense of the overall objective of rationally utilizing the work force in sections and shops entail much and careful fieldwork, performed with objectivity, tact and principledness.

Analyses and inspections made by experts from the Ministry of Labor and from economic central bodies and ministries revealed in a number of units inconsistencies, an incorrect orientation and even deviations in fulfilling such obligations, in applying the party decisions and the legal provisions in the field of labor organization and work-rate setting. Against the background of the above-mentioned positive results and actions, such deviations--sometimes tolerated, if not even encouraged by the leaderships of the respective enterprises--are equivalent to obstacles to growth in productivity, altering the effects of measures that were relied on in substantiating the plan indicators.

Here are several situations found, some remedied on the spot in the interim, but to which we draw attention since they could also appear in other units.

The Iasi Electric Network Enterprise: the index of fulfillment of the work rates is significantly distorted, since the calculation of it is not done in accordance with the regulations in force.

The Cluj-Napoca Automotive Repair Enterprise: some painters exceed the work rate with too much ease. In fact, it is admitted that they deviated from the technology provided by the work rates, to the detriment of the quality of the work.

The Alexandria Enterprise for Electric Panels and Boards: to some operations, for which there are uniform work standards and rates, local rates, with more leeway than the time really necessary, are nevertheless applied.

The Bucharest "Grivita" Textile Enterprise: some local rates do not have a scientific substantiation, are established in accordance with the conditions of insufficiently well-organized work processes.

The Teleajen-Ploiesti Enterprise for Petroleum Equipment and Repairs: a selection of "comfortable" rates, which, under the conditions of deficiencies in the organization of production and labor, still offer a "stimulant" to the workers, are applied to various activities of casting, forging, lining with fire clay, and processing on special machines and equipment.

The Cimpina Enterprise for Electric Equipment Repairs: although processing machines with a higher output, which also improved the working conditions, were introduced, the old rates were preserved.

The Rimnicu Vilcea Chemical Equipment and Forge Enterprise: in comparison with the labor consumption necessary under the existing working conditions, or ones that can easily be provided, the rates for some operations of forging and mechanical processing have at least 10-percent more leeway, since they were drawn up on the basis of unsuitable technological documentation or records for calculation, without specification of the technical and organizational conditions taken into account in devising them.

The Ploiesti "Dorobantul" Cloth Enterprise: an unjustifiably high number of workers, maintained due to the incorrect application of the uniform rates, work at the weaving and yarn-doubling machines.

The Satu Mare Enterprise for Spare Parts and Equipment for the Chemical Industry: the documentation on the operational work rates established for various work performed in the foundry, on the planer and for some products does not specify the operating standards of the equipment or the processing dimensions, allowing unjustified "tolerances" of time.

An Important Reserve: the Reduction of Auxiliary Personnel

One or another of the exemplified phenomena is also found in units whose age or high degree of command of the technological processes or level of organization should confer on them high precision in operating the mechanism for establishing and applying the work rates: the Heavy Machinery Enterprise, the Enterprise for Automation Elements and the "Vulcan" Enterprise in Bucharest, the Fagaras Chemical Equipment Enterprise, the Galati Enterprise for Ferrous Metallurgical Construction and Installation, and so on.

Showing undesirable effects of collaboration between foremen and rate setters, a lack of correlation between the programs for studies in the field of the organization of production and labor and the programs for reexamination of the work rates, and poor control on the part of the collective leaderships, such deviations from the discipline of rate setting constitute a direct violation of the socialist principle of payment according to the quantity and quality of the work actually performed. The wasting of a part of the supply of worktime in this way and the gap that is created between the pay fund consumed and the physical productivity reduce the new value created and, in consequence, reduce national income and the possibility of increasing the incomes of the working people.

There still are cases--in a number of units in building-assembly, but also in industry--when artifices in rate setting are consciously resorted to, in order to "attract" workers in the so-called short-handed trades. Such "solutions" do not solve anything. More important than extinguishing the fire is preventing it. In our matter, prevention means a healthy, provisional policy of recruiting, training and stabilization of the work force, polyqualification, the sensible scheduling of production and the rational organization of it and labor. Plus specification of the working technologies. It is downright aberrant that even in our days, at the level of mechanization that the construction sites have attained, transportation by wheelbarrow or by direct carrying and extensive digging by hand are still included in some rates, even in some working documentation. Of course, most of the time they do not work in this way, but this work is accounted for in this way, artificially inflating the manual labor paid for.

A problem with regard to which precise instructions and tasks have been given--and not recently--still remains to be solved: the reduction of the number of workers in indirectly productive and general-service activities to the absolute minimum. In a number of units this minimum is determined by estimation, and the estimate--as in the case of oversupplying--is subject to the tendency of overcoverage. The temptation remains and manifests itself where and as long as work standards and concrete tasks are not established for the workers paid from overhead, in the indirectly productive activities. It thus came to the crowding of enterprises of the Wool Industry Central with manipulators and receiver-distributors and to a decline in labor productivity--in comparison with the level that could have been obtained--by 4 percent in the units of the petroleum trusts in Ploiesti and Moinesti, due to the exceeding of the approved number of indirectly productive workers. At the Ghioroc, Tirgoviste, Bragadiru and Tulcea enterprises of the Central for Industrial Exploitation of Mineral Aggregates for Construction (MEFMC [Ministry of Forestry Economy and Construction Materials]), every fourth worker is paid from overhead--a situation that favors disorganization, a lack of discipline and the wasting of potential.

Since we have referred tangentially to the industrial centrals, let us dwell a bit on their role, more precisely, on those elements of this role that some of them resolve incompletely, formally or not at all. In some subbranches of machine building, the plans for work-rate setting include to an unsuitable extent tasks regarding the making and application of studies specific to the organization of production and labor, the generalization of solutions from the studies made, and thus the reproduction of the good results obtained--which causes significant differences between the units of the same central to be maintained in the mechanization of the work in foundries and of loading and unloading and in the organization of warehouses. More unitary and efficiency coordination of the making and application of the studies, especially regarding the raising of the degree of mechanization of the work, the typification of the manufacturing technologies, and the improvement of the organization of some work, would have allowed the Industrial Central for Nonferrous Metals (MIM [Ministry of the Metallurgical Industry]) to possess valuable elements for drawing up uniform rates for a group of enterprises for the operations of extrusion of pipes and bars, cutting and straightening of sheet metal, lamination of sheeting, and so on. The Industrial Central for Electric Networks (MEE [Ministry of Electric Power]) and the Autonomous General Directorate for Petroleum and Gas (MMPG [Ministry of Mines, Petroleum and Geology]) were late in approving and transmitting the improved uniform rates within the 1978 rate-settingplan. As a result, in the component units, for a good part of last year, the old rates, corresponding to long since obsolete conditions, were applied further to the respective operations.

These are questions which whould not be omitted from the analysis that the general assemblies of the representatives of the working people in the industrial centrals and the units similar to them make--and which, in any case, should lead to the intervention of the leaderships of the centrals, in order to bring order to this field of responsibility.

Proposals for Improving the Rate-Setting Activity

According to the sole national plan, the labor productivity in industry this year, in comparison with 1979, will register a rise of 8.7 percent on the basis of the value of the net output and, respectively, 8.5 percent on the basis of the value of the gross output, with 79 percent of the increase in net output being obtained in this way. In building-assembly activity, the labor productivity (calculated on the basis of the value of the net output) will rise 8.4 percent. As one of the main ways to ensure the fulfillment of this extremely exacting qualitative indicator, there is provided the task that the ministries act for the rational utilization of the supply of worktime for all categories of personnel, through continual improvement of the work rates and standards and personnel quotas and standards, under the conditions of fulfilling on the established dates the measures in the plans for growth in labor productivity with regard to the introduction of new manufacturing technologies and the improvement of existing ones, the raising of the degree of mechanization and automation of production, and the improvement of the organization of production and labor.

The application of the proposals made by the Ministry of Labor, as a result of the above-mentioned inspections, is of great utility in attaining this objective. We synthesize them here, since they are of interest to all the economic units for orienting their own activity of devising, improving and applying the work rates and standards.

During the field activity, the specialized personnel from ministries, centrals and design institutes (shops) should give the enterprises technical assistance in making and applying studies on organization of production and labor, in properly drawing up the technological documentation and in devising the uniform work standards;

The branch-coordinating ministries should exercise to the full the powers that devolve upon them in this capacity, and from the viewpoint of work-rate setting, through the generalization of the solutions for efficient organization, of the modern technologies and of the uniform work standards and rates in all the specialized units, regardless of subordination;

The units in which the technical and organizational conditions taken into account in devising the uniform standards and rates are not provided should be obliged and helped to achieve such conditions within a certain period. In the respective interval, they would be able to apply local work standards and rates with more leeway than the uniform ones, but with a verified justification and with the approval of the higher-ranking body;

The bodies that devised the uniform work standards and rates should make improvements in them, on the basis of the experience of the units at which technical and organizational conditions better than those taken into account in drawing them up have been created and which apply local work rates of suitable quality.

In the documentation for the new industrial investment facilities, the design units should indicate or devise the work rates or standards for manufacturing the products in the specialty of the respective units, so that a labor productivity at the level attained in the best similar units is provided when they go into operation. (Moreover, in a study made recently by the Central Institute for Management and Data Processing, in reference to a methodology for drawing up the organizational part of the investment documentation, it is considered that within the framework of planning the system for organizing and managing the enterprise the bases for setting the work rates for all categories of personnel should be established and local work standards or rates, specific to the technical and organizational conditions of the enterprise, and operational work rates for current activity or production should be devised on the basis of the uniform or local work standards.)

The putting of these proposals into application will improve the general framework for organizing the activity of rate setting. But the guidance and control of the day-by-day performance of it remains the attribute of the working people's councils and the executive bureaus in the centrals and enterprises, constituting an important field for sustained organizational and political work.

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PERSONAL INCOMES IN 1979 SURVEYED

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 29 Apr 80 p 4

[Article by Milorad Urosevic: "The Deceptive Picture of the Average"]

[Text] In the sphere of material production personal incomes last year were still not earned on the basis of performance or according to the principles of the Law on Associated Labor. We are, of course, talking only about the averages for groupings and activities, which number 79 in all, as well as averages for the republics and provinces and for the country as a whole. This is not, however, enough for examining the true state of affairs and relations in distribution of funds for personal incomes.

To support these statements we need to discuss the content of the figures which have been published and also facts which indicate that the methodology for monitoring the personal income of the labor force is outdated.

The average net personal income of employees in the socialized sector was 6,113 dinars last year, which is one-fifth above the average for 1978. Its growth was 0.4 percent slower than the rise of the cost of living in that same period, and the differences from activity to activity are appreciable. If one looks in a bit more detail at the ranking of the 79 groupings and activities with respect to the level of personal incomes, it is obvious that in the upper half we mostly find persons employed in activities where personal income actually represents a "salary," since performance is by and large not measured in those sectors. In the lower half we find employees in activities where personal income depends on fulfillment of quotas.

Average personal incomes exceeding 10,000 dinars monthly made their first appearance last year in pipeline transport, project planning and related services and offices of public defenders of self-management law. Employees in the pipeline transport industry, for example, were the leaders in this respect with an average of 10,748 dinars, or 75.8 percent higher than the national average and 2.5-fold higher than textile workers, who are at the bottom with 4,378 dinars, or 28.4 percent below the Yugoslav average. The difference is still more appreciable if we ignore the average for the country and look only at the highest personal income during the year, which is

12,601 dinars in pipeline transport in Croatia, and at the lowest, which is in yarn and fabric production in Montenegro with only 3,298 dinars, the ratio of the highest to the lowest being 3.8:1.

There are also considerable differences from one sociopolitical community to another. The labor force in Slovenia had the highest personal income--7,393 dinars, in Croatia it was 6,571, in Serbia proper 5,954, in Vojvodina 5,793, in Bosnia-Hercegovina 5,437, in Macedonia 5,035 and in Kosovo 4,802 dinars per employee. Differences in the extreme values from which these republic and provincial averages were obtained are equally significant.

The real differences can be realized if we also take into account payments for community consumption in organizations of associated labor in the sphere of material production and institutions in the social services. But it is not a simple matter to obtain these figures.

Figures on the level of community consumption in organizations of associated labor and other institutions which are users of socially owned assets are to be found in quarterly statements and year-end statements, and the Social Accounting Service of Yugoslavia publishes them in "comparative indicators." Why they are not also published in the regular reports of the Federal Bureau of Statistics together with average personal incomes is a question hard to answer, since then the records on personal earnings would be complete and would be in conformity with the provisions of the constitution and the Law on Associated Labor. The most likely thing is that the present methodology of monitoring personal income is not suitable to the changes which have occurred recently.

We note from the comparative indicators for the first half of last year (the indicators for last year will soon be completed in the Social Accounting Service of Yugoslavia) that the differences in funds for community consumption per employee are considerably greater than in the case of net personal income. As is usually the case, the work force and groupings with more favorable economic conditions in the sector of material production: pipeline transport, production of petroleum derivatives and the like, and then in foreign trade, financial services, project planning organizations, associations of organizations of associated labor, which also includes economic chambers, and certain noneconomic activities--where personal incomes are anyway considerably higher than the average--also have large appropriations for community consumption. And conversely, in organizations of associated labor in the sphere of material production where the personal incomes are lowest, appropriations for community consumption are also the lowest.

By dividing personal incomes and community consumption per worker by a common denominator and by publishing the figures obtained in this way it would be possible to examine the real situation. That kind of knowledge would eliminate all the differences which are not based on the results of work, since this is a condition for a greater effort by organizations of associated labor in the sphere of material production to raise labor productivity.

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CSO: 2800

SURVEY SHOWS WEAKNESSES IN DELEGATE CONSTITUENCIES

Belgrade KOMUNIST in Serbo-Croatian 25 Apr 80 p 8

[Article by Viktor Strkalj: "On the Periphery of Political Interest"]

[Text] The first scientific study of electoral processes in the delegate system in Croatia, which has been conducted by a group of researchers from the Institute of the School of Political Science in Zagreb, has shown that behind the general assessment that electoral activity is lively or the statistical figures to the effect that 90 or even more percent of the registered voters voted in a particular district is hidden, for example, another datum to the effect that 52 percent of the respondents did not know that in the local community they had elected candidates for the sociopolitical chamber of the opstina assembly. It is, of course, true that one cannot draw far-reaching observations solely from the results of a survey of an election, that first, and not even the most important step in the functioning of the delegate system, but it is also obvious that the behavior of the working people and citizens can no longer be left on the periphery of the concerns of sociopolitical organizations. Especially since elections in the delegate system are not merely plebiscites for expressing opinions concerning the methods of building our socialist society or a choice of one candidate or another, but above all "the delegating of delegations" through a self-management agreement concerning upcoming tasks.

The results of the survey done by Ivan Siber, which covered the answers of 2,330 respondents in 60 basic organizations of associated labor and 5 local communities in 12 opstinas, show that the activity of delegate constituencies is still considerably less than the system affords and requires, that the motivation that is the basis of electoral activity is burdened to a considerable extent by the previous forms of election choice, that the electoral situation is perceived as one in which the working people and citizens, that is, the sociopolitical organizations representing the largest numbers of people--the Socialist Alliance and the trade union--still do not have the decisive role. One can also conclude from the survey that the knowledge indicated of the delegate system is not sufficient for vigorous involvement in electoral process, but yet the new delegate elections are seen in a very favorable light.

It is an interesting datum, for example, that the membership of the delegation of the local community is quite involved in electoral processes, while individuals who do not have any delegate function in organizations of associated labor within the local community behave like "ordinary citizens." The answers of the respondents, however, show that only slightly more than 6 percent of them feel that they were very active in electoral processes, while nearly 70 percent of the working people and citizens chose the answers "no involvement" or "little involvement." It is also indicative that members of the League of Communists are not necessarily involved in electoral processes, but those members who hold some position in the League of Communists were particularly involved. Involvement in the Socialist Alliance is also closely correlated to electoral activity, though this cannot be said of rank-and-file members of trade union organizations.

What is the reason for participation in electoral processes? About 26 percent of the working people and citizens polled declared that in the second round of delegate elections they voted out of "civic duty," that is, out of what the author of the study refers to in the jargon as "conformist" motives. In the large group of so-called "interested voters" the motivation that is the basis of their involvement comes down to "support of the system," "election of a representative," and interest in the processes of delegation. Looking at the aggregate, those individuals who have no function at all in the delegate system, and also those who are not members of the League of Communists, were more apt to say that their involvement resulted from their civic duty--"so that I won't be regarded as passive and uninterested," while voters with higher education and positions in organizations of associated labor and the League of Communists stood out in the breakdown of those voters who are "interested."

Another question in the survey was this: Who had the greatest influence in the recent elections? Only 43.2 percent of the respondents in local communities felt that the working people and citizens, that is, the Socialist Alliance, had the greatest influence. Similar figures were also obtained in organizations of associated labor. It is worth mentioning that a high number of respondents declared that the League of Communists had the greatest influence, which is an obvious indication that the organizations principally responsible for performing electoral tasks--the Socialist Alliance and the trade union--did not make themselves felt in a large number of communities. From the standpoint of political action it is also indicative that a sizable group of voters believe that the decisive influence was exerted by various political activs, coordinating committees, leadership forums and informal groups.

According to the results of the survey, a large number of the respondents are aware of the fact that they are not sufficiently familiar with electoral processes in the delegate system, since nearly 52 percent of them chose the response: "It was clear to me in general outline." It is difficult, for example, to comment on the datum that 31 percent of the delegates polled in opstina assemblies and 35 percent of the delegates from "higher" structures did not know that they had elected the delegation of the local community according to their place of residence, and a still greater number of them did not know where the vote is taken for the delegation of the sociopolitical chamber of the opstina assembly.

Whereas the preliminary figures can fit into the frequently stated judgments to the effect that the "delegate system has established itself in practice in spite of the shortcomings and weaknesses," the essential thing is that nearly 80 percent of those polled felt the delegate elections to be "very important," even though a large share of them were still passive or behaved like conformists. However, when it is a question of evaluating specific electoral activity, only 57 percent of them responded favorably, while the rest were critical either because of the way the delegate constituency behaved or because of the behavior of certain participants who were guiding processes from outside. In other words, a considerable number of the respondents are critical toward the practical realization of the system even though they have a favorable opinion of the system itself.

As shown by this survey, the delegate elections are still burdened with the conventional system of evaluation. That is, in responding to the question of whether the number of candidates should be the same as the number to be elected or whether the number of candidates should be greater, nearly 74 percent of those polled chose the second alternative, primarily because this gave them the following of "electing," and not "voting." The dilemma, however, is an artificial one, since the essence of electoral processes must be in analysis of the social situation, in the granting of definite priorities in the solving of problems, in analysis of everything that stands in the way of more rapid establishment of the delegate system, and within that framework, in the election of those individuals who most exemplarily express the interest of the particular community and who will participate in decisionmaking processes in constant interaction with the delegate contituency.

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CSO: 2800

CHEMICAL INDUSTRY SETS GOALS FOR 1981-1985

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 19-21 Apr 80 p 3

[Article by Dusan Ivanovic]

[Text] The efforts intended to be made in the coming 5-year period should above all make it possible for Yugoslavia's chemical industry to achieve its most important targets--to change its structure and thus to establish a ratio of 55:45 between the heavy chemical industry and the chemical manufacturing industry. This change is to be achieved at a higher level; moreover, the growth of the output of the chemical industry is planned at an average annual rate between 8.5 and 9.5 percent. It is crucial, however, that the proportions between the two segments not be disrupted: that is, the heavy chemical sector is supposed to grow at a rate between 11 and 12 percent and the manufacturing sector at a considerably more modest rate between 6.5 and 7.6 percent. The logic is simple: at this point there is a need to emphasize considerably more the production of primary raw materials and processing materials than to further encourage manufacturing, which is anyway oversized for our conditions and frequently consists of duplicate capacities.

Nevertheless, in this orientation it is worth recalling that the demand for a structural change is not being made for the first time. It was also emphasized in the current medium-term planning period, when the plan called for the heavy sector to increase at a very high rate of 18 percent and the manufacturing sector at a rate barely half as high. In practice, however, not only did the reverse take place with the chemical manufacturing industry growing at twice as high a rate as the heavy chemical industry, but this also occurred at a considerably lower level, since the heavy chemical industry achieved a growth of only 5 percent.

The upshot of this was poorer supply of primary raw materials from domestic sources, augmented imports of many components, and, accordingly, slower development of the chemical manufacturing industry and the pharmaceutical industry. It was difficult in this situation to maintain the assortment of some 10,000 chemical products and at the same time to maintain the effort for their top quality. There was also a threat that the share of chemical products in total industrial production might fall below about 10 percent, which is the minimum required for balanced economic development.

A Few Figures

For the basic goals up to 1985 to be achieved, the key capacities of the heavy chemical industry need to be utilized at a level of at least 70 to 80 percent, which should make it possible in the last year of the coming medium-term period to achieve a value of output that would be between 6 and 9 percent greater than consumption. The share of imports in supplying the domestic market would be 20 percent, and Yugoslavia's chemical industry would at the same time have to look to exports for at least about 25 percent of its output.

Now that we are discussing foreign trade, the aim is to maintain the import-export ratio in value terms at 2:1, that is, to export 1 dinar's worth of goods for every 2 dinars of imports. Once again for this important item the same ratio has been envisaged as in the current medium-term plan, which was not respected because of the structural disproportions already indicated. That is, for every dinar of export the chemical industry imported goods worth 2.48 dinars, a result to which the unfavorable balance in the heavy industrial sector contributed greatly: its ratio of exports to imports was 1:3.49, while in the chemical manufacturing industry it was 1:1.55.

The growth rates of individual groups of products which have been planned relative to 1978 are also interesting. Heavy chemicals are to grow at a rate of 13.6 percent, agricultural chemicals 5.2 percent, chemical fibers 10.1 percent and synthetics 14 percent, which gives an average of 11.3 percent for the heavy chemical industry. The manufacturing sector is to grow at a rate of 6.9 percent, or in detail as follows: drugs and pharmaceutical raw materials between 7 and 8 percent, washing and cleaning agents 5 percent, paints and varnishes 5.5 percent, plastics manufacturing 8 percent and miscellaneous chemical products 7 percent. If these ratios are achieved, the chemical industry as a whole would grow at a rate of 9.1 percent.

It is certain that one of the limiting factors on development will be the supply of raw materials from external sources, especially those products purchased entirely on the foreign market. These are above all the following: among nonmetallic minerals--phosphate, potassium chloride, sulfur components and borates; among metals--chromium and titanium concentrate, in addition to which we must mention that 80 percent of our petroleum and 65 percent of our natural gas is imported. So, whereas in 1975 more than 50 percent of our raw materials were imported, this year the plan called for 54.4 percent, and in 1985 this share would climb to 62.8 percent.

It is obvious that an orientation toward better utilization of domestic raw materials, coal, petroleum and gas is indispensable and that a beginning must be made on systematic work to test domestic oil shale and to use biomass as a chemical raw material, waste from agricultural production above all. The possibility of exploiting phosphates and of chemical enrichment of metallic and biological raw materials is also becoming increasingly important.

The Price of the Planned Development

We should immediately emphasize that the planned development of the chemical industry up to 1985 is not only not cheap, but also is questionable in view of the question as to the extent to which our country is financially strong enough to achieve these goals. After all, investments between 110 and 120 billion dinars are necessary to prevent a lag in development.

Nor may we lose sight of the fact that the chemical sector is also consuming large amounts of electric power, brown coal and liquid fuels, that is, elements whose share is essential to production.

Though adequate quantities of raw materials are not available, since about 60 percent of total needs are met with imports, though it is true that it is a great advantage to have one's own raw materials base, this ought not to be a check on the further development of the chemical industry. Especially if at least some 30 percent of total output were exported and a sizable portion of the necessary imports covered in that way.

More rational business operation along with substitution of imported raw materials by obtaining them from domestic sources, accompanied by higher labor productivity and more economical and profitable economic performance, is certainly imperative in the coming period. These efforts would make it possible for the chemical industry to improve its accumulative and reproductive capability, which is particularly important since strong investment activity is also necessary to further development.

Then again, it is indispensable that prices be coordinated over the entire chain, rather than to maintain the present practice in which each segment separately applies for price changes, which subsequently results in frequent price rises of finished products.

It is certain that this practice cannot be continued indefinitely, especially when we are talking about long-range development.

Personnel are an equally important factor in development, since chemistry demands a great deal of knowledge, and that presupposes further efforts to improve the skills of employees, especially since this activity is changing rapidly under the impact of scientific advances and explorations for new raw materials.

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12 June 1980

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